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Why Aren't African Americans Donating Blood Given that Sickle Cell Disease is Most Prevalent in this Ethnic Group?

By

Sumiko Smith
Degree to be awarded: M.P.H
Executive MPH

Committee Chair____
Date

Committee Member____
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Date

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Date

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By

Sumiko Smith

Thesis Committee Chair: Laurie Gaydos, Ph.D.

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health in Executive MPH program 2017

Abstract

Introduction: SCD affects approximately 100,000 Americans and occurs in approximately 1 of 365 African American births. More than half of all persons with SCD will require a blood transfusion, and the best match comes from a donor of the same ethnic group. However, the number of African Americans who need blood transfusions from African American donors exceeds the number who donates. The literature identifies some barriers that prevent African Americans from donating, but there are no data on the types of marketing strategies used for recruitment. The aim of this study was to identify barriers that prevent African Americans from donating blood in order to develop appropriate interventions for recruitment.

Methods: This quantitative study was a survey of African-Americans in Charlotte, NC to determine attitudes and behaviors related to blood donation. We recruited 25 participants in a convenience center at a childcare center event. Analysis consisted of chi-square tests to show the relationship between age and donation history, and cross-tabulations to examine demographic predictors of donation history.

Results: Of the 12 participants who had ever donated blood, 75% had donated at least once in the past year, with female, college-educated and respondents in their 30s most likely to donate. The main reasons for donation were to save lives and give back to the community. The primary reason for not donating was never being asked, followed closely by lack of knowledge about blood donation With regards to message delivery preferences, Talking with someone and the Internet were the preferred delivery methods to receive information about blood donation. The use of advertisements and providing educational materials were identified as the main motivators to help increase blood donations.

Conclusion: Preliminary findings suggest that lack of knowledge about blood donation and not being asked to donate may be key obstacles to donation among African Americans. This finding suggests that appropriate messaging strategies are needed to help increase awareness about SCD and blood donation to increase rates among African Americans.

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Acknowledgements

Thank you to Dr. Laurie Gaydos for her guidance and support throughout this process; to Dr. Larry Nixon and Demetrica Bookert-Nixon (Cure Sickle Cell Foundation) for their contributions and providing a wealth of knowledge about Sickle Cell Disease; to Sakia Sellars for allowing me to utilize her facility (A Mother's Touch Family Childcare Center) to conduct my surveys for this study; and to all my family and friends who have given me continuous support and kind words of encouragement.

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Introduction

Sickle Cell Disease (SCD) is the most common hereditary blood disorder. In the United States, it is estimated that SCD affects approximately 100,000 Americans (Centers for Disease Control and Prevention [CDC], 2016). SCD occurs in approximately 1 out of every 365 African American births (CDC, 2016). While SCD can lead to numerous health problems, including pain, infections, anemia, and stroke, many people who have SCD learn to manage the disease and thus maintain a good quality of life. Treatment options include painkillers, antibiotics, and blood transfusions. More than half of all persons with SCD will require a blood transfusion in their lifetime, and the best match comes from a donor of the same ethnic group. A sickle cell patient may build antibodies against the donated blood if it is not closely matched, and the transfusions will be ineffective in treating the symptoms of the disease. Like other genetic factors, blood is similar among people of the same ethnic group, and this is why the closest match for a sickle cell patient will most likely come from an African American donor (American Red Cross, 2016).

However, the number of African Americans who need blood transfusions from African American donors exceeds the number of African Americans who donate blood. Only 7.3 % of nationwide blood donations are from African Americans (American Red Cross, 2013). Although existing literature identifies some barriers that prevent African Americans from donating blood, there are no data on what types of marketing strategies are used for recruitment purposes. The purpose of this quantitative research project is to identify barriers that prevent African Americans from donating blood, in order to develop appropriate interventions.

Review of the Literature

Sickle Cell Disease

Sickle Cell Disease (SCD) is the most common hereditary blood disorder, occurring in African Americans at a rate of approximately 1 in every 365 live births (CDC, 2016). It is estimated that the severe form of SCD affects approximately 100,000 African Americans. (CDC, 2016). A bone marrow transplant is the only known cure for SCD. However, bone marrow transplants are difficult to obtain because they require specific human leukocyte antigen (HLA) typing from an HLA-matched sibling who does not have sickle cell disease (Children's Healthcare of Atlanta, 2016). Treatment options include painkillers, antibiotics, and blood transfusions. More than half of all persons with SCD will require a blood transfusion in their lifetimes, and the best match comes from a donor of the same racial group (American Red Cross, 2016).

Health-related Issues and Costs

Sickle cell disease is a disease that has a wide spectrum of effects, which vary from person to person. In some people, the disease triggers very painful crises that require frequent hospitalizations, and in others, it may cause milder attacks. These crises affect the lungs, abdomen, bones, kidneys, eyes, heart, and liver (University of Maryland Medical Center [UMM], 2011). They occur when sickle red blood cells block limbs and organs, which causes pain and organ damage. The pain can be chronic or acute, but acute pain is more common. The acute pain varies from mild to very severe and can last from hours to weeks at a time. People with chronic pain experience it in their bones for weeks to months, which may limit their daily activities and cause missed days at work or school. Almost all individuals who have SCD have painful crises at some point in their lives. Some may experience them less than once a year, and others may have it once a month or more (UMM, 2011). Children with SCD may experience vision problems, delayed growth, frequent infections, swelling of the hands and feet, and severe pain episodes (American Red Cross, 2012). In public health, SCD is a major concern. According to the American Society of Hematology, in 2004 there were approximately 113,000 hospitalizations for sickle cell related illness in the United States, of which 75% were for adults. The estimated annual cost of hospitalization for that year was $488 million (Singh, Jordan, & Hanlon, 2014). In 2005, medical expenditures for children with SCD were estimated at $11,702 for children with Medicaid coverage and $14,772 for children with insurance (CDC, 2016).

Blood Transfusions

Transfusions of red blood cells are one of the treatments that are given to SCD patients to help prevent strokes. Normal red blood cells carry oxygen through the body. Red blood cells of people with SCD do not deliver oxygen as well as normal red blood cells. Therefore, the cells change into a sickle shape, which blocks the flow of blood through the vessels. Transfusing normal red blood cells helps deliver oxygen to the body and unblocks blood vessels to prevent complications (St. Jude Children's Research Hospital, 2017).

Characteristics of Repeat and Lapsed Blood Donors

Understanding blood donors and their reasons for donating is key to designing effective recruiting campaigns. A lapsed donor is identified as one who hasn't given blood again within two years after a donation (Steele et al., 2008). An important factor that appears to affect long-term commitment or repeat donation is age. Studies have found that older donors from all races are likely to donate again (Germain et al., 2007;

Schlumpf et al., 2008). With first-time donors, age does not appear to be a factor, and does not determine whether or not they will return to donate. Other factors which may affect repeat donation are lack of time, lack of a convenient site, treatment by blood collection staff, how the donor felt physically during and after the collection, and the level of privacy allotted during the pre-donation screening (Germain et al., 2007; Schlumpf et al., 2008).

Underrepresentation Among African American Donors

Blood donation rates are influenced by race as well as age and education. The number of African Americans who need blood transfusions exceeds the number of African Americans who donate blood. While African Americans represent 12 to 14% of the total U.S. population, only about 1 percent of the African-American community donates blood (American Red Cross, 2016).

Recruitment for African American donors is increasingly important to ensure an adequate blood supply for the entire community. Red blood cell products donated by African Americans are especially important for the treatment of SCD (Shaz, B., Hillyer, K., & Hillyer, C., 2011). SCD patients are best transfused with donors of similar genetic background, i.e. African American donors, to prevent the formation of red blood cell alloantibodies, which can result in hemolytic transfusion reactions (Shaz, B., Hillyer, K., & Hillyer, C., 2011). Therefore, there must be an adequate red blood cell supply donated by African Americans to fulfill this need.

Reasons for Underrepresentation

A review of the literature foregrounds the reasons why African Americans are not donating blood. Studies have shown that the principal barriers to increasing blood donation within the African American community are inconvenience, fear, and perceived medical disqualification (Gillespie & Hillyer, 2002). In a study of 15 predominately African American churches of various denominations in the metropolitan area of Atlanta, Georgia, 930 participants completed a survey designed to assess their demographic background, blood donation frequency, motivators and barriers to donation, knowledge and beliefs regarding donation, and overall health status. The most frequent barriers were that participants rarely thought about donating blood and that they were afraid, nervous, or anxious to give blood (Shaz, James, Demmons, Schreiber, & Hillyer, 2010).

In a study of young African American women, the most important reason for not donating was inconvenience, followed by fear of needles and taking too much time (Grossman, Watkins, Fleming, & DeBaun MR, 2005). In this small sample of young African American women, the primary donation motivator was to increase awareness about the need for blood, with an emphasis on the importance of transfusions for the treatment of children with sickle cell disease. In a study comparing African American college student donors and non-donors, Shaz, James, Demmons, Shreiber, and Hillyer (2009), found that non-donors were more likely to be afraid of donation and less often agreed that the blood supply is safe. In another study on African American church attendees, the most common cited barrier to blood donation was also fear (Shaz, James, Demmons, Schreiber, & Hillyer, 2009). Researchers surveyed African American and white registered voters and found that the major barriers were similar between the two groups: inconvenient place, fear of needles, and pain or discomfort. African Americans were less likely to know where to donate (James, Schreiber, Hillyer, & Shaz, 2010).

Donation has been associated with the increase in trust and decrease in the perceived risk of donation (Andaleeb & Basu, 1995). The level of trust is likely related to a previous health care experience. African Americans have mistrust with a history of maltreatment, of which Tuskegee is the most prominent example (Boulware, L., et al., 2002). Few studies have examined the role of trust of African Americans in blood centers. In a cross-sectional study, 385 African Americans responded that they were less likely to trust hospitals than whites and were more likely to agree with the statement “Hospitals have sometimes done harmful experiments on patients without their knowledge” (Boulware, L. et.al, 2002). African Americans were more likely to report being afraid of hospitals and believe that white patients received better care than any other racial group. This study demonstrated that those who feared hospitals had a significantly lower likelihood of previous donation history than those who did not (Boulware, L., et.al, 2002). A study of African American church attendees demonstrated that respondents who trusted hospitals (77% of participants) versus those who did not (23% of participants) previously donated or been willing to donate, received education materials regarding blood donation, and less likely to be afraid of hospitals or feel that hospitals have done harmful experiments on patients without their knowledge (James, Demmons, & Schreiber, 2010). In addition, those who trust hospitals were more likely to agree with the motivator of “donating blood because it is needed” and were less likely to be afraid of needles, of feeling faint, of donating, and of catching a disease. Lastly, those who trusted hospitals were more knowledgeable about the blood supply and Sickle Cell Disease.

Previous Interventions to Increase Blood Donations Among African Americans

Recruitment Programs. Studies have shown that the majority of African American recruitment programs encourage individuals to donate for children with SCD (Hillyer & Shaz, 2011). Sickle Cell Sabbath Program, a recruitment program, was created to increase awareness about SCD and to promote blood donation for children with SCD by mailing SCD educational packets within the African American faith communities (Price, C., et.al, 2009). Six months after mailing packets to members of the African American community, there was a 75% increase in the number of African American donors and a 64% increase in the number of first-time donors. However, the subsequent six months showed a return to the baseline; therefore, the effects of this intervention were not sustained.

In 2010, the American Red Cross in the Greater Chesapeake and Potomac Region started a program called the “Blue Tag” program. This Sickle Cell Donor program is designed to encourage people, specifically African Americans to give blood for SCD patients. Whenever African American donors present themselves to donate at any American Red Cross donor center or blood drive in the Greater Chesapeake and Potomac Region, they are asked to place a special Blue Tag on their donation to designate their blood for a patient with Sickle Cell Disease. The blood goes to a SCD patient if it is a match. If it is not a match, it will go to another person in need. With this initiative, African American donors are asked to give as frequently as possible, and to encourage friends and family to donate and ask for the Blue Tag. Blood drive sponsors are asked to share information about the Sickle Cell “Blue Tag” Donor Program with their donors and supporters, and to spread the word about this important initiative

(American Red Cross, 2010). Although this program still exists and helps with blood supply for SCD patients, it is only active in one of the 36 blood service regions.

The Theory of Planned Behavior. Most existing studies that have examined blood donation decision-making are based on the theory of planned behavior (TPB), which links beliefs and behavior. Since its introduction, TPB "has emerged as one of the most influential and popular conceptual frameworks for the study of human behavior" (Ajzen, 2002, p. 665). This framework has been used in studies of the relations among behavioral intentions, attitudes, and beliefs in various fields such as public relations, advertising campaigns, and healthcare (Ajzen, 1991). Various research topics have been addressed using the TPB, including: seatbelt use, consumer behavior, drug use, exercise, smoking, and workplace choices. Identifying and measuring these variables can assist in understanding what factors African American blood donors hold as important in their formation of intentions to donate blood and, specifically, to become repeat blood donors. In 2001, a meta-analytic review reported that 185 independent studies had been published applying TPB (Armitage & Conner, 2001). The review provided evidence supporting the use of the theory of planned behavior and found that the TPB accounted for predicting 27% and 39% of the variance in an individual's intention and behavior, respectively. The TPB has been applied across a wide range of behavioral domains since its beginnings in the 1980s; however, only in the last decade has its application been seen in the area of blood donations.

The TPB is based on the assumption that humans are rational, and deliberately use the information available to them to form and guide their intentions to perform a behavior (Ajzen, Albarracin, & Hornik, 2007). Intention, a key component of the theory, is defined simply as the subjective probability that an individual will perform some behavior; furthermore, “intentions are assumed to capture the motivational factors that influence a behavior” (Ajzen, 1991, p. 181). In the broad sense, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger a person’s intention will be to go through with the behavior in question (Ajzen, 1985). Consequently, these variables (e.g., attitude, subjective norm, and perceived behavioral control) are viewed as predictors of intention. The subjective norm variable involves providing information to an individual, which may come from different sources (family members, public health officials, etc.). Not many studies on blood donations examine how information about the need of blood for SCD is provided to individuals. Therefore, the level of motivation will probably be low, which means a person’s intention to donate will not be less likely. Moreover, TPB does not include marketing strategies, which is a limitation of most existing studies of blood donation decision-making.

Social marketing. Whereas TPB has been the norm for previous studies, considering the role of social marketing is important for examining blood donation motivation. The use of social marketing needs to be included to influence attitudes and behaviors in a way that hasn’t been done in the past. To raise awareness of the need for blood, it is important to include marketing strategies such as education programs, good communication from blood banks, government agencies and health services, and the endorsement of mass media. Social marketing was first discovered as a discipline in the 1970s, when Philip Kotler and Gerald Zaltman realized that the same marketing principles that were used to sell products to consumers could be used to "sell" ideas, attitudes, and behaviors (Tan, 2009). It applies concepts to develop, communicate, and deliver value to influence a target audience's behavior to benefit society (Tan, 2009). Social marketing allows individuals, policymakers, and influential interest groups such as non-government agencies and the media to affect behavior (Tan, 2009).

Social marketing has been used by health services as a tool for promoting public health activities such as developing community action plans for obesity prevention, smoking, AIDS, and promoting breastfeeding practices in community, hospital, and workplace settings. It is a systematic and strategic planning process that results in an intended practice or program (Weinreich, 1999). In 1997, the United States Department of Agriculture (USDA) launched its national breastfeeding promotion and support campaign for the Women, Infants, and Children (WIC) program. This campaign was designed to promote breastfeeding as the best method of infant nutrition and to foster wider public acceptance of breastfeeding in the United States. A social marketing approach was used to promote breastfeeding to WIC participants and their families by emphasizing that the support of family and friends, the health care system, and the community are all essential for a breastfeeding mother to be successful (CDC, 2013). Another social marketing campaign conducted was the Texas Department of State Health Services Mother-Friendly Worksite Program. This campaign's main focus was on educating Texas employers about mother-friendly policies in the workplace. As part of the campaign, in-depth telephone interviews were conducted with breastfeeding promoters across the country, Texas businesses that participate in the Mother-Friendly Worksite Program, and businesses that do not participate in the program. Focus groups were also conducted with business leaders, mothers, and fathers in six Texas cities (CDC, 2013).

Social Marketing in Blood Donor Management

In the last two decades, blood services have adopted social marketing strategies in the development of blood donor programs in order to ensure a sufficient pool of voluntary blood donors and supply of safe blood at all times (Tan, 2009). However, greater attention to the four major dimensions of marketing might result in more effective social marketing than has been exhibited in the existing literature. To this end, the commonly known four P's of marketing helps define marketing strategies in terms of price, product, promotion, and place, in order to meet a specific need or demand.

Developing marketing mix strategies: The four P's

Product strategy: Product in this case refers to voluntary blood donation. The main focus is to find out what the donors think and feel about it (Tan, 2009).

Price strategy: Price is not economic. It refers to what the donor is willing to pay, such as overcoming fear and giving up time from their personal life in order to receive the product. Emphasis is to focus on the social responsibility dimension. In blood donation, the strategy is to create a vision to bring about change from one's current perception of blood donation to one that is desirable (Tan, 2009).

Place strategy: Donors are able to reach the collection sites (Delivery). By determining habits of the target audience along with their experience with the delivery system, blood services may be able to achieve high donor retention rate (Tan, 2009).

Promotion strategy: Promotion is the use of advertising, public relations, promotional media, and advocacy when focusing on creating and sustaining the idea of blood donation as an act of benevolence (Tan, 2009).

With a more rigorous approach to marketing, social marketing for blood donation may support a more stable supply of volunteer donors and blood, particularly among specific populations like African Americans.

Summary and Relevance

Few studies have identified reasons why African Americans are not donating blood. Intervention programs have also been designed to help with retention; however, results have shown minimal to no success. Since the current programs are only minimally effective, there is a need to explore additional strategies that are not currently being incorporated into the intervention programs. This study focuses on the largely unaddressed areas of how the messaging regarding the need for African American blood donors reaches various populations. With this information, coupled with what is already known about reasons for non-donation, it will be possible to create better intervention programs.

Methods

This chapter provides a summary of the research design used, a description of the population involved, and a plan for data analysis. The Emory Institutional Review Board deemed this research eligible for exemption, because it posed minimal risk to participants. This is a quantitative study that will identify barriers that prevent African Americans from donating blood, given that Sickle Cell Disease is most prevalent in this ethnic group.

Sampling and Recruitment

The sample was comprised of African Americans located in Charlotte, North Carolina and surrounding areas**.** To be eligible for this study, participants had to be at least 18 years old, male or female, African American, English-speaking, and able to give consent to participate in the study. Recruitment occurred during a health event located at "A Mother's Touch Family Childcare Center," a predominately African American childcare center that is located in a predominately black community. Individuals that attended this event were the children enrolled at the school and their families. The purpose of the health event was to promote proper diet and exercise. Various health professionals were present to educate the entire family about proper nutrition and physical activity. Informed consent was obtained from each subject prior to administering the questionnaire. Participation in this study was voluntary, and participants were not coerced in any way.

Data Collection

The Principal Investigator conducted the study on August 6, 2016 at a Childcare Center located in Charlotte, North Carolina. The questionnaire was written in English and printed on paper. Each participant was provided with a copy, along with writing utensils. Participants took 10-15 minutes to complete the questionnaire. Questions were divided into three sections. Key topics covered were demographics, blood donation history, barriers and motivators for donating blood, and sickle cell awareness. Table 1 details all of the variables in the survey. Section 1 captured demographic information about the participants that included age, gender, marital status, and education level. Section 2 focused on questions about blood donation. Participants were asked if they have ever donated blood and if so, how often they donated in the past 12 months. Individuals who had never donated or had not donated within the past 12 months were asked questions about why they had not donated, and those who had donated were asked what motivated them to donate. Questions in the donation section of the survey also focused on how individuals would like to receive information about donating blood. The last question in Section 2 asked from whom they would be interested in learning about blood donation. In the literature, it’s clear that delivery method and from whom donors would prefer to receive information about blood donation are not well established; therefore, these questions were included in the survey. Section 3 ended with questions relating to Sickle Cell Disease. Those questions were asked to gain information on what African Americans thought the reasons are for why this ethnic group is not donating often, given that SCD is most prevalent in this race, and to find out what they think would motivate African Americans to donate more often. Questions relating to this section were open-ended questions. Fifteen females and 10 male participants completed twenty-five questionnaires. Each participant completed a 14-item questionnaire, which included both open- and closed-ended questions. Participants were recruited when they first entered the facility where the event occurred. The Principal Investigator introduced herself to adults who appeared to meet the above requirements, told them what her study was about, and then asked the potential participants if they were interested in participating in the study. The participants were told that they could stop taking the questionnaire or withdraw from the study at any time, in accordance with the Emory Institutional Review Board’s requirement for this study.

Table 1

Explanation of Variables

Variable Text	**Potential Outcome**
Gender	1=Female 2=Male
Marital Status	1=Single, never married 2=Married, domestic relationship 3=Separated 4=Divorced 5=Widowed
Education Level	1=Up to 8th grade completed 2=Some high school, no diploma 3=High school graduate/GED 4=Some college credit, no degree 5=Trade/vocational/Associate's degree 6=Bachelor's degree or higher
Have you ever donated blood?	1=yes 2=no
In the past 12 months, how often have you donated blood?	1=four times 2=three times 3=twice 4=once 5=none
What are the main reasons that prevent you from donating?	1=I am afraid of needles 2=I am afraid of catching a disease 3=I am afraid that I may feel weak or sick after giving my blood 4=I am afraid my blood would be used for research 5= I do not have any spare blood to donate 6=I am very busy 7=I was never asked
What are the main reasons that motivate you to donate blood?	1=Blood transfusions save lives 2=There is no substitute for human blood 3=Offers a way for me to give back to my community 4=I will receive free wellness screenings 5=Someone I know and trust asked me 6=Members of my community donate blood 7=Other

Who would you be interested in learning about blood donation from?	1=Friends 2=Family members 3=Church members 4=Government Agencies 5=Nonprofit Organizations 6=Doctors/Nurses 7=Other
If you had to choose a delivery method for receiving information about donating blood, which would be most effective for you?	1=Television/Radio 2=Posters/billboards 3=Internet 4=Talking with someone who has already given blood 5=Forums/Meeting with an expert 6=Other
Now that you are aware that blood transfusions are a form of treatment for SCD, does this change your motivation to donate blood, or donate more often?	1=Yes 2=No 3=Unsure
How knowledgeable do you believe you are about SCD?	1=Very knowledgeable 2=Knowledgeable 3=Somewhat knowledgeable 4=Not knowledgeable

Data Analysis

The Principal Investigator (PI) ran Chi-square tests using Microsoft Excel software in order to create a cross-tabulation showing the relationship between each participant's age and whether he or she ever donated blood. The PI also used Microsoft Excel to develop demographic descriptions along with descriptive tables of preferences. The cross-tabulation table was designed to show a representation of the age group that had the most people donating blood (see Table 2). Education levels, along with donation histories, were also cross-tabulated to determine if there was a relationship between the two variables (see Table 3).

Results

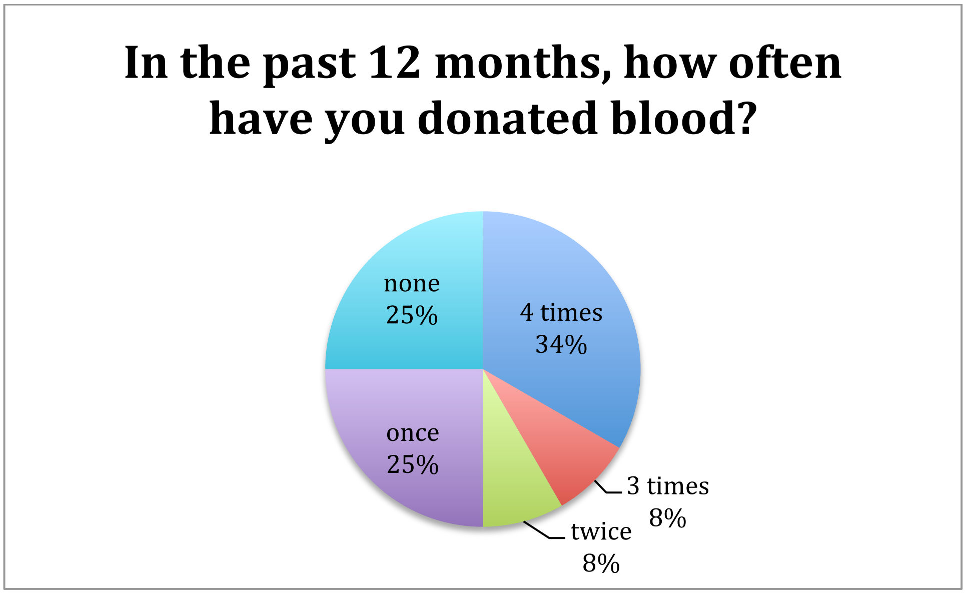
Of the 25 participants in the study, 15 were females and 10 were males. The youngest participant was 21 years old, and the oldest was 65 years old. Ten were single or never married, eleven were married or in a domestic relationship, and the remaining six were divorced. The education level for all participants varied; however, the highest level of education obtained by most people was a bachelor's degree or higher (see Table 2).

Table 2

Demographics

Characteristics	**Number of participants (n=25)**
Sex	
Male	10
Female	15
Age	
Median	42
Range	21-65
Marital Status	
Single, never married	10
Married or domestic relationship	11
Divorced	4
Education Level	
High school graduate, diploma or the equivalent	6
Some college credit, no degree	5
Trade/technical/vocational Training/Associate's degree	6
Bachelor's degree or higher	8

Twelve out of the 25 participants had donated at least once in their lifetime. Out of the 12 participants, 75% had donated blood at least one time in the past 12 months. The age group consisting of 30-39 year olds had the highest number of participants who had donated blood within the past 12 months. Participants' primary reason for not donating was that they were never asked by anyone (see Figures1 and 2).



*Among those who reported ever donating

Figure 1. Blood donations among African Americans

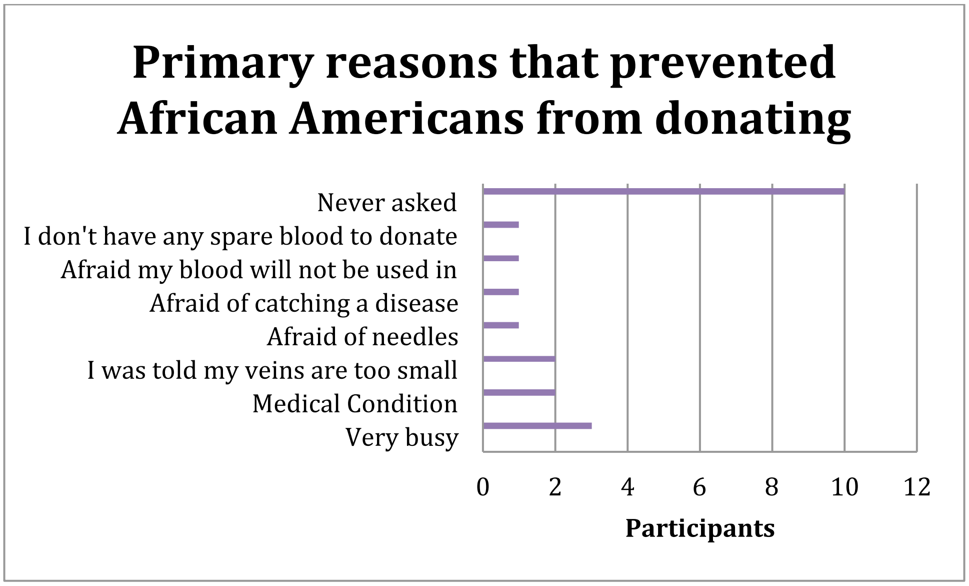


Figure 2. Primary reasons that prevented African Americans form donating. Totals may be greater than 100%, as participants had the option to select multiple options.

Figure 3 showed that the main reasons why participants in the study donate blood are because blood transfusions save lives and it's a way to give back to the community. However, community members donating showed very little impact on motivation levels for individuals to donate.

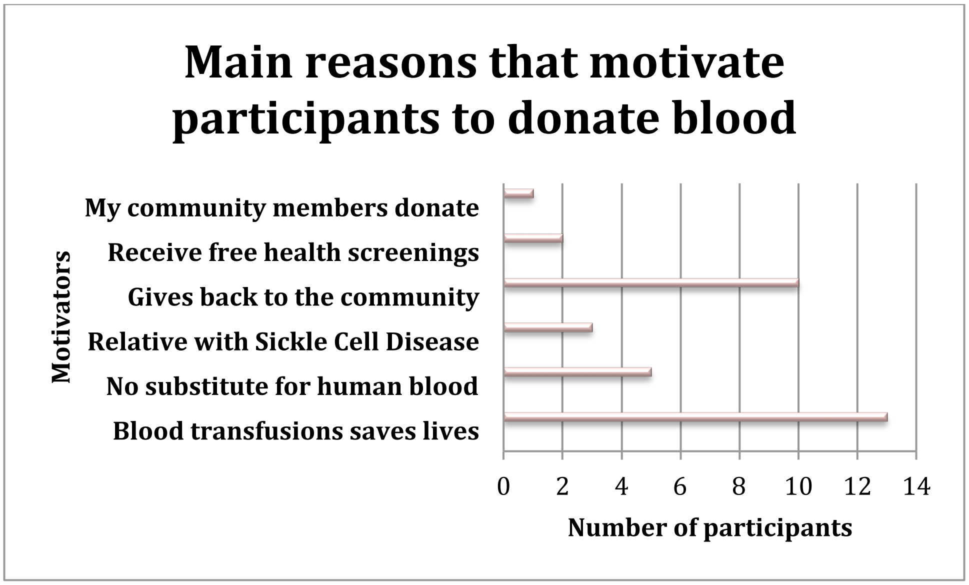


Figure 3. Main reasons that motivate participants to donate blood. Totals may be greater than 100% as participants had the option to select multiple options.

Nonprofit Organizations, along with nurses and doctors, were identified as the top two groups that participants thought were most effective for delivering the message about the importance of blood donation. The least favorable were government agencies and churches (see Figure 4).

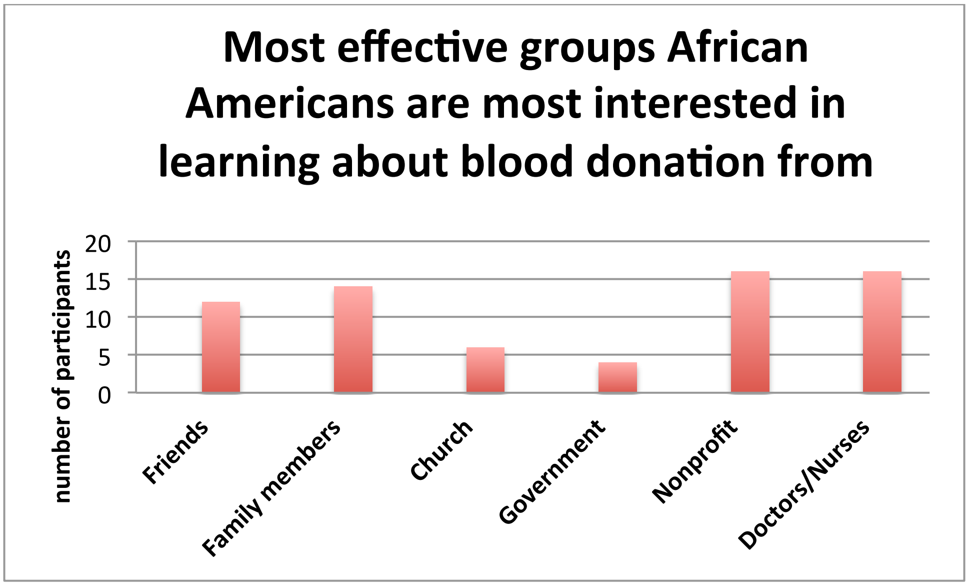


Figure 4. Most effective groups African Americans are most interested in learning about blood donation from. Totals may be greater than 100%, as participants had the option to select multiple options.

Figure 5 shows how the effective delivery methods selected by participants varied. Talking with someone and the use of the Internet were chosen as the most preferred effective delivery methods to receive information about blood donation. Out of the six options given, all methods appeared to be effective, with the exception of cellphone apps from nonprofit organizations.

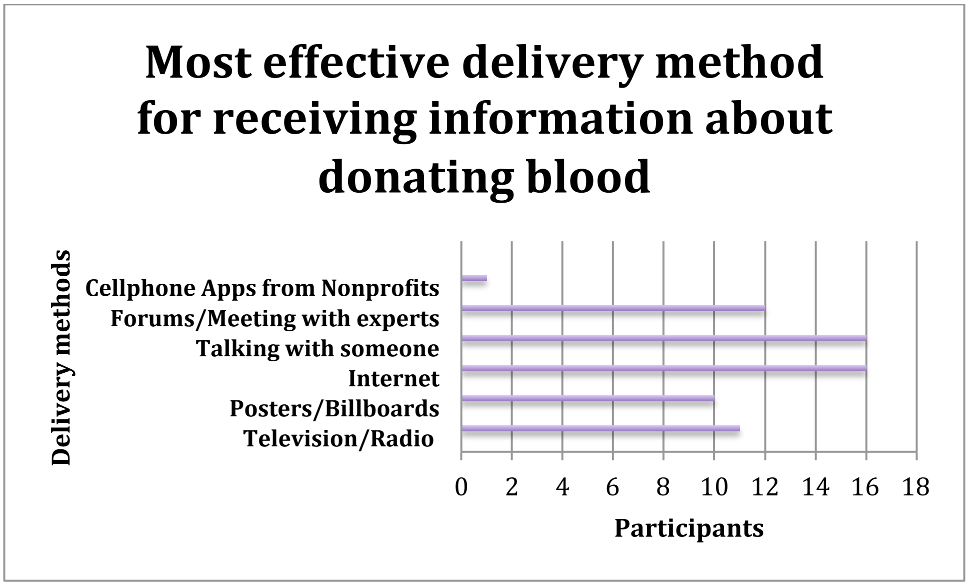


Figure 5. Most effective delivery method for receiving information about donating blood. Totals may be greater than 100%, as participants had the option to select multiple options.

Figure 6 showed that 5 out of the 25 participants said that they were very knowledgeable about SCD. The majority responded that they were somewhat knowledgeable about the disease.

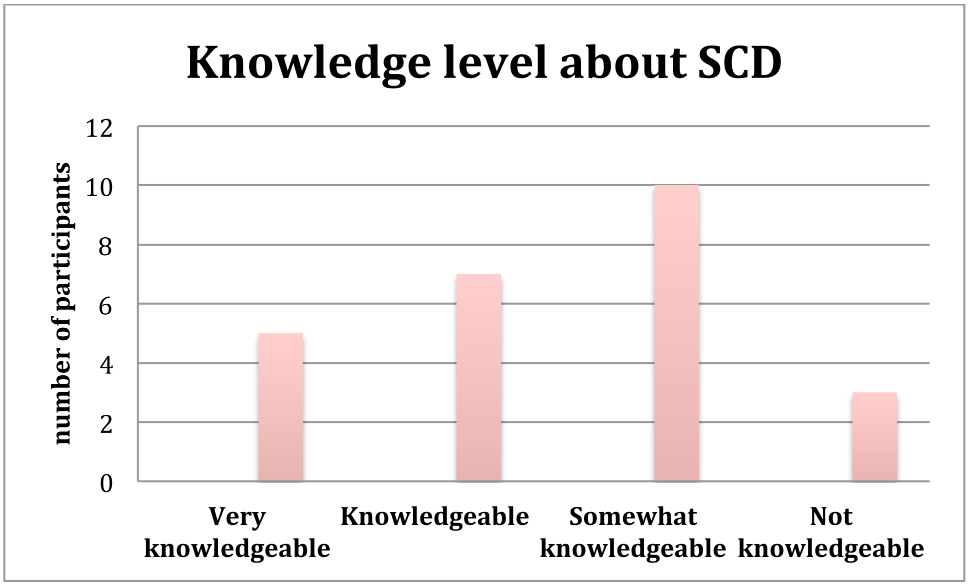


Figure 6. Knowledge level about SCD

Figures 7 and 8 showed the barriers that prevent African Americans from donating blood and the motivators that participants thought would help increase donations. The participants identified responses such as accessibility, religious reasons, being afraid of needles, and no trust in the healthcare system as barriers that prevent African Americans from donating blood. However, 15 of the 25 participants listed lack of knowledge as the main reason. Advertising and education about donating had the highest results for motivators that participants thought would help increase blood donations among African Americans.

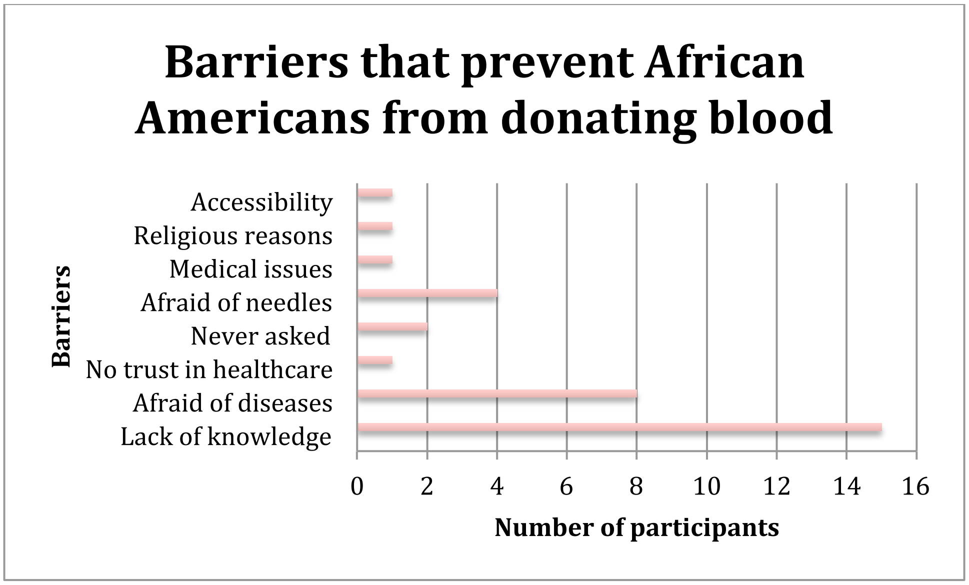


Figure 7. Barriers that prevent African Americans from donating blood. Totals may be greater than 100%, as participants had the option to select multiple options.

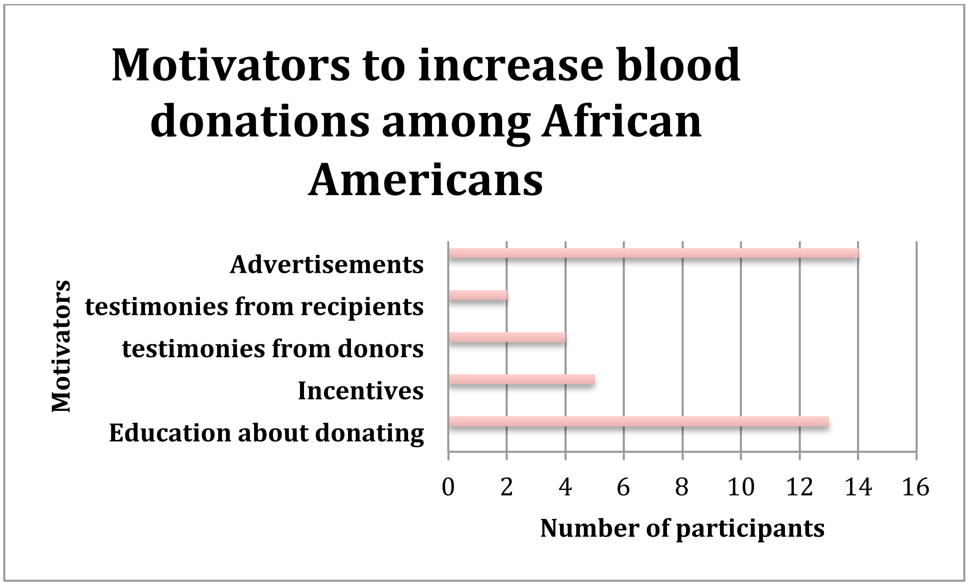


Figure 8. Motivators to increase blood donations among African Americans. Totals may be greater than 100%, as participants had the option to select multiple options.

Results from the chi-square tests showed that females are statistically more likely to donate at least once in their lifetime than males (see Table 3). Although individuals with a college degree were more likely to donate at least once in their lifetime than those without degrees, they are still more likely not to donate than to donate (see Table 4).

Table 3

Gender/Donation Cross-tabulation Table

Observed			
Gender	Yes	No	Total (n)
Males	7	3	10
Females	5	10	15
Total (n)	12	13	50
N=sample size			

Expected			
Gender	Yes	No	Total (n)
Males	3.12	3.9	10
Females	3.6	3.9	15
Total (n)	12	13	50

Notes:
p= 0.000100.09 A = 0.05

Table 4

Education/Donation Cross Tabulation Table

Observed			
Education	Yes	No	Total (n)
Degree	8	6	14
No Degree	4	7	11
Total (n)	12	13	50
N=sample size			

Expected			
Education	Yes	No	Total (n)
Degree	3.36	3.64	14
No Degree	2.64	2.86	11
Total (n)	12	13	50

Notes:
p = 0.000130732 A = 0.05

Discussion

This study builds on previous research about why African Americans are not donating blood. A few publications have addressed reasons why African Americans are not donating or have developed intervention programs for retention purposes. However, these programs have documented only minimal success. In this study, the primary reason reported as a barrier to African Americans donating is never being asked. This finding was different from those of Grossmen et al. (2005) and Shaz et al. (2009), both of which found fear and taking too much time to be the most important barrier to blood donation. However, all studies were similar in finding that fear of needles was one of the barriers identified. In regards to gender and education, this study is consistent with other findings, in which men were likely to donate more than women, and that college-educated men and women are more likely to donate than individuals with a high school education (Nonis, Ford, Logan, & Hudson, 1996; Lemmens, et al., 2009).

Unlike other studies, this study aimed at focusing on messaging strategies to help increase awareness about blood donation and Sickle Cell disease. Effective delivery methods for disseminating information and motivators to increase blood donations were identified. Nonprofit organizations such as the American Red Cross, along with doctors and nurses, were the most important groups from whom participants were most interested in learning about blood donation. Advertising and increasing education about blood through the use of the Internet, forums, and talking with an expert were identified as motivators to increase blood donation among African Americans. A study conducted by Price et al. (2009) created a retention program to help increase awareness about SCD and blood donation by mailing out educational packets. There was a 75% increase and after six months blood donations returned to the baseline; therefore, the intervention was not sustained, suggesting that there is a need to focus on sustainability as well as initiation of donation. The study failed to identify which delivery method would be most effective to participants in helping increase and retain blood donors, raising a key issue for future studies.

Limitations

This study was not without limitations, particularly with respect to the generalizability of the findings. First, there was a small sample size of 25 participants. There was also an overrepresentation of participants who were in their forties compared to the other age groups. A larger sample size would have shown a better representation of the population, limiting the influence of outliers or extreme observations. In addition, the study was limited by self-reporting, which is subject to recall bias (subjects may not remember) and social desirability bias (subjects may want to present themselves in a socially acceptable manner). Knowledge is self-reported and not objective, therefore there's a possibility that participants responses to the question about their knowledge level for SCD could have been perceived knowledge and not actual knowledge. Finally, convenience sampling, although an easy, fast method for finding subjects who are readily available, is limited by systematic bias, as it is not representative of the entire population, and by low external validity (generalization and inference making about the entire population). Although important as an initial study, it is recommended that future studies use random sampling.

Recommendations and Implications

A lot of existing studies have used churches and government agencies to collect data about the donation decision-making process. However, data from this study suggest that people may not want to receive information about blood donation from these organizations. Further studies should focus on trying to identify why African Americans are no longer interested in receiving information from them and what types of interventions can be implemented to help resolve this problem. Spiritual leaders play a major role in the African American community. More emphasis is needed on reaching out to spiritual leaders and educating them about SCD and the importance of blood donation so that they can help educate their church members and others within the community. The preliminary findings of the study suggest that a lack of knowledge about blood donation and simply not being asked to donate may be key obstacles to donation among African Americans. This finding suggests that appropriate messaging strategies are needed to help increase awareness about SCD and blood donation so that blood donation rates among African Americans will increase and remain at a rate that would allow an adequate blood supply for SCD patients. For example, following the "promotion strategy" from the four P's, messaging might include television and radio ads, printed materials, the use of social media to encourage donating blood, and implementing community education programs sponsored by health professionals and nonprofit organizations. Television and radio advertisements are referred to as the traditional media. These two forms of media are able to reach a large audience and provide information in a timely manner. Timeliness allows the message to be delivered to promote current promotions about public health issues. Printed educational and advocacy materials may not bring about behavioral change by themselves, but they can be valuable tools in intervention programs. Printed materials comes in many forms, such as posters for display in health centers or public places, pamphlets for physicians, healthcare workers, or patients resource, materials for health workers, and development training programs, especially in conjunction with "place strategy." Social media currently provides a variety of possibilities for establishing multidirectional communication and interaction. These new tools can potentially help the public health community meet many of its modern challenges and mandates regarding communicating with, educating, engaging, and monitoring a diverse public (Capurro, Cole, Echavarria, Neogi, & Turner, 2014).

Further study would be needed to determine the specific messaging and intervention specifics. Future research should focus on obtaining information from various organizations and health services about why they think African Americans are not donating ("price strategy"), what current interventions, if any, they are providing to African Americans, and how consistent they have been with monitoring and evaluating their programs so that the information is disseminated appropriately.

Overall, this study adds to the literature on blood donation among African Americans by concluding that lack of knowledge is due to ineffective marketing strategies.

The results suggest that it is essential for the public health community to advocate for greater awareness about SCD and blood donation. Information provided from this study can help public health officials educate the public about how critical the need is for blood from African Americans.

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Appendix

Questionnaire

Please answer the following survey items with either written information or a checkmark, depending on the type of question being asked.

Demographics

1. Age: __________________

2. Gender: ________Female ________Male

3. Marital Status: What is your marital status?

_____Single, never married
_____Married or domestic relationship
_____Separated
_____Divorced
_____Widowed

4. Education Level: What is the highest degree or level of school you have completed? (If currently enrolled, highest degree received)

_____Up to 8th grade completed
_____Some high school, no diploma
_____High school graduate, diploma or the equivalent (for example GED)
_____Some college credit, no degree
_____Trade/technical/vocational training/Associate's degree
_____Bachelor's degree or higher

5. Have you ever donated blood? **If yes, go to the next question, #6. If no, skip to #7.**

_____Yes
_____No

6. In the past 12 months, how often have you donated blood?

_____Four times
_____Three times

_____Twice
_____Once
_____None

If you answered none, go to question #7. All other answers skip to question #8.

7. What are the main reasons that prevent you from donating? Select all that apply.

____ I am afraid of needles
____ I am afraid of catching a disease
____ I am afraid that I may feel weak or sick after giving my blood
____ I am afraid my blood would be used for research
____ I am afraid my blood will nor be used in my community
____ I do not have any spare blood to donate
____ I am very busy
____I was never asked
____ Other (Please specify)
____
____
____

8. What are the main reasons that motivate you to donate blood? Select all that apply.

____ Blood transfusions save lives
____ There is no substitute for human blood
____ Offers a way for me to give back to my community
_____ I will receive free wellness screenings (blood pressure, cholesterol, iron level, etc.) and testing for infectious diseases (HIV, Hepatitis, Syphilis, West Nile Virus, and Chagas) every time I donate
_____Someone I know and trust asked me to donate
_____ Members of my community donates blood
_____ Other (Please specify)
____
____

9. Who would you be interested in learning about blood donation from? Select all that apply.

____Friends
____Family members
____Church members
____Government Agencies (. i.e. Centers for Disease Control and Prevention)

____Nonprofit Organizations (i.e. American Red Cross)
____Doctors/Nurses
____Other (please specify)
____

10. If you had to choose a delivery method for receiving information about donating blood, which would be most effective for you? (Select all that apply).

____Television/Radio programs
____Posters/Billboards
____Internet
____Talking with someone who has already given blood
____Forums/Meeting with an expert
____Other (Please specify)

Sickle Cell Disease

According to the Centers for Disease Control (CDC) approximately 90,000-100,000 people in the United States are affected with Sickle Cell Disease (SCD), mainly African Americans. SCD occurs among 1 of every 500 African American births. Blood transfusions are commonly used to treat SCD complications. Often, donors with the same ethnic background provide the best match. While high rates of SCD prevail in the African American community, less than one percent of blood donations are from African Americans.

Now you will be asked some questions specific to Sickle Cell Disease.

11. Now that you are aware that blood transfusions are a form of treatment for SCD, does this change your motivation to donate blood, or donate more often?

____Yes
____No
____Unsure

12. How knowledgeable do you believe you are about Sickle Cell Disease (SCD)?
  ____Very knowledgeable about SCD
  ____Knowledgeable about SCD
  ____Somewhat knowledgeable about SCD
  ____Not knowledgeable about SCD

13. In the United States, less than one percent of blood donations are from African Americans. What are some barriers that you feel may be the reason why more African Americans are not donating blood?

____

____

____

14. What do you think would motivate more African Americans to donate blood, or donate more often?

This concludes the survey. If there are any additional comments you would like to add, please use the space provided below.