

# Healthful Practices Among Blood Donors in A Low-Income Setting

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## Abstract

**Background:** Blood donation is sustained by the availability of healthy donors. It does not only require recruiting new healthy donors, but also maintaining existing ones in optimal health. As recruitment of new donors is not guaranteed, it is essential that existing donors are always in good shape. The study therefore assesses the lifestyles and healthy habits of a sample of recurrent blood donors, their demographic characteristics, and motivations for donation. **Methods:** This was a cross-sectional study involving 127 blood donors between the ages of 17 and 60 years in Korle-bu, Ghana. Participants were sampled by the snowball method and were provided with pre-tested electronic questionnaires. The data was summarised using the Numbers software by Apple Inc. and then analysed. **Results:** All were non-smokers and engaged conscientiously in at least one healthy habit, with 60.3% actively following fitness schedules. There were no lifestyle-related health conditions or substance addictions. Up to 94% of the respondents had attained university education. Motivations for donations revolved mostly around altruism and almost half (46.5%) of the respondents conceded that being blood donors had made them live healthier. **Conclusion:** Voluntary blood donors in the selected low-income setting were mostly health conscious, and the donor status significantly affected this way of life, only more indirectly than directly. More indirectly because the healthy habits practised predominantly oriented to personal well-being, reinforced by the desire to donate blood in many situations.

**Key Words:** Healthy Lifestyle, Blood Donation, Blood Donors (Source: MeSH-NLM).

## Introduction

Blood donation is a process described from the 19th century as collecting blood from apparently healthy individuals and infusing into ill individuals.<sup>1</sup> It has undergone several evolutions but maintains its essence. Millions of lives have been saved from this practice—which remains the single most effective way of replacing lost blood.<sup>2</sup> Millions of people all over the world need blood transfusions yearly, majority being pregnant women, and children under 5 years.<sup>3</sup>

The health of blood donors remains paramount to the sustainability of this lifesaving process.<sup>4</sup> The standard questionnaire by the World Health Organisation (WHO) for blood donors, for instance, focuses on the health status of prospective donors, by inquiring symptoms and signs of specific diseases.<sup>3</sup> The healthy donor effect, coined from the healthy worker effect, is a phenomenon largely perceived as a form of membership bias.<sup>5</sup> It describes a kind of top-bottom association between health and donation, in which donation is always a product of good health and that donation by itself can not improve health. The potential bottom-top association between these two is worthy of discussion.

Family replacement donation (FRD) is directly linked to inadequate supply of blood as it is unreliable. In Ghana, for instance, 63% of blood is sourced from FRDs.<sup>6</sup> A survey from 2014 to 2016 revealed a higher incidence of transfusion transmissible diseases (TTDs) such as viral hepatitis in FRDs compared with voluntary donors.<sup>7</sup> For this reason, the WHO advised countries to push for 100% voluntary donations by 2020.<sup>3</sup> Fitness for donation relies on the sustained health of the donors, which is not an expectation from FRD donors. As such, the WHO guidelines for blood donation suggest national policies be put in place to protect the health of blood donors, and proposes continuous haemovigilance by blood transfusion services, in order to get a near-real-time health status of their donors.<sup>8</sup> Donations from voluntary donors reduce by up to 10% when subjects either feel or have been diagnosed with sub-optimal health.<sup>9</sup> Healthy blood comes from healthy donors hence the need to ensure good health of the donor at all times.

To remain as a blood donor, one is required to maintain good health not just for themselves, but also for the safety of the recipients (who must be protected from maliferous blood). This study was therefore necessary for assessing the demographic characteristics, health habits and motivations for donation in recurrent donors.

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## Methods

### Study design, population and area

This was a cross-sectional study that employed the snowball sampling technique, in which recommendations were received from eligible participants to others of similar characteristics for contacting.

The target population was blood donors who had donated to the National Blood Service Ghana (NBSG) directly or indirectly. Direct donors to the NBSG, are those who visit the facility at Korle-Bu in Accra to donate blood as well as those who donate during mobile blood donor drives. Indirect donors are those who donate at programs supervised by the NBSG. Known blood donors were first contacted, who then shared contacts of other eligible donors—facilitating the snowball sampling.

Participants were aged 17-60 years, and were either voluntary (who had donated multiple times) or FRD donors. For FRD donors, preference was given to those who planned to donate again in the future while those who had donated only once, and did not plan to donate blood in the future were excluded. The sample size was determined by the formula:

$$n = z^2p(100 p)/d^2$$

where n= sample size, p= prevalence of voluntary blood donors, and d=margin of error. With prevalence set at 9, margin of error at 5%, and corresponding z score for the error margin at 1.96, the calculated sample size was 126. The study involved 127 subjects. The value of p was estimated as 9% because there were no studies on the prevalence of voluntary donors in Accra (or Korle-bu). However the probability of looking for blood donors in this setting is greater than 5% due to the presence of the hospital and the NBSG. Data was summarised using the Numbers Software by Apple Inc. by exporting from Google forms and then analysed descriptively.

The study area was within Korle-Bu with 3 different settings: the NBSG, Southern area blood bank of the NBSG, and the University of Ghana Medical Student Hostels. The NBSG at Korle-Bu is an agency of the Ministry of Health and head office for blood donation services in Ghana.<sup>10</sup> It organises and supervises blood donation exercises to ensure sustainability of blood donation in Ghana. Donors, here, are always voluntary.

The Southern area of the NBSG runs a smaller blood bank within the Korle-Bu Teaching Hospital, where voluntary as well as FRD donors are able to donate blood safely, under the direct supervision of the NBSG. The student hostels house medical students from 3rd year to 6th year and are also situated close to the hospital.

### Data collection instrument

A 40-item electronic questionnaire designed with Google Forms was used and had predominantly closed-ended questions. This was developed by the first author (but not validated) and pretested on 18 subjects. Based on the feedback given by these

initial subjects, revisions were made by removing ambiguous questions and eliminating almost all open-ended questions. The links to the questionnaire were thereafter sent to the respondents via the communication media of their preference. It was sectioned: demographics (assessing basic information like sex and occupation), donor and donation history (covering donor details such as blood group and frequency of donation), and health and the donor (which assessed health habits such as exercise frequency and health conditions of the donors such as presence of chronic illnesses and frequency of hospital admissions). Necessary help was given for completing the forms, which totally eliminated partial responses. Contacting the respondents greatly increased the response rate and also helped reduce selection error. Those that were unable to submit their responses within a week were considered non-respondents. The data was collected in July 2020 during a partial lock-down (necessitating the snowball sampling method).

### Ethical considerations

All participants gave informed consent. They were assured of anonymity and confidentiality for all information provided. Permit was sought from the National Blood Service Ghana, as well as the Proposal and Ethics Review Committee of the Department of Community Health of the University of Ghana Medical School with clearance number UGMS-CHDRC/49/2020.

## Results

127 of 139 eligible donors completed the survey (response rate 91%).

### Demography

The sex distribution was 51.2% males to 48.8% females, with 93% being under 31 years. The mean age was 26.6 years with a standard deviation of 4.7. 61.4% were medical students, 18.1% health workers, 7.1% teachers and the remainder had other professions like private business owners. All were educated (about 94% to the university level). The major ethnic groups in Ghana were: Akan-64%, Ewe-13%, Ga-10%, Northern group-9%, Guan and Nzema-4%.

### Donor and Donation History

The data included donors from all blood groups, with most being blood group O+ or B+ (44.9% and 29.9% respectively). 91.3% were voluntary donors while 8.7% were family replacement donors (that planned on being voluntary donors).

Most had been donors for at least a year prior to the survey (83%) and 52.4% were registered blood donors at the NBSG. Almost half (49.6%) became donors when aged 18-20 years and 48% at ages 21-30 years.

The majority (91.2%) of the participants were not donors with specific schedules for donating blood. Of the 8.8% scheduled donors (11 respondents), 56% donated at least twice a year and the highest number of donations per year was three times (by 3

respondents). Of the 91.2% unscheduled donors, most (91.8% of 114 respondents) donated only once a year on average, and the remainder donated at most, twice a year on average.

Motivations for donation included altruism and desire to be part of a lifesaving team (64.8% and 53.3% respectively), conscience (17.2%), promotions from media, health workers or other sources (18%), incentives such as free food (4.9%), and positive impact on personal health (9%).

### Health and The Donor

A little over 20% (21.3%; 27 responses in all) had ever deferred donating blood for various reasons such as anaemia (55.6%), and low weight (18.5%)

None (0%) had any chronic diseases such as hypertension or diabetes and almost all (98.4%) had never received blood transfusions themselves.

**Table 1.** Summarises the Demography and Various Practices Engaged in by the Donors.

Demography		
Mean ages <sup>a</sup>		%(SD)
18.5		6.0(7.7)
25.5		87.4(0.7)
35.5		4.7(9.3)
51.8		2.3(31.8)
Gender <sup>b</sup>		No(%)
Male		61(48.4)
Female		66(51.2)
Occupation <sup>c</sup>		n(%)
Student		78(61.4)
Health worker		23(18.1)
Teacher		9(7.1)
Others		17(13.4)
Practices		No(%)
1. Special preparation before a donation <sup>d</sup> :		28(23.0)
Increasing food intake		21 (80.0)
Healthier food choices		14 (53.8)
Food supplementation		8 (30.8)
Exercising		8(30.8)
2. Weekly Fruit consumption <sup>e</sup>		105 (82.7)
3. Fitness schedule <sup>f</sup> :		78 (60.3)
Aerobics		48 (60.0)
Jogging		31 (38.8)
Sports		27 (33.6)
Brisk walking		29 (36.3)
Yoga		10 (12.5)
Others		9 (11.7)
4. Alcohol intake <sup>g</sup>		29 (22.8)
5. Smoking <sup>h</sup>		0 (0.0)
6. Over the counter drug usage <sup>i</sup>		85 (67.5)
7. Caffeine <sup>j</sup>		52 (42.6)
8. Multiple sexual partners <sup>k</sup>		11 (8.7)

**Legend:** a,b,c,e,g,h,i,j,k All used a common denominator of 127 representing all respondents. dSpecial preparations such as increasing food intake, food supplementation and healthier food choices all used a common denominator of 28, representing those that made special preparations ffitness schedules such as aerobics, jogging, sports, etc used a common denominator of 80

24 respondents (18.6%) had ever experienced adverse reactions and the commonest was dizziness or faintness (69.6%). Others included nausea (39.1%), headaches (30.4%), passing out (26.1%), and bleeding (4.3%).

For those that followed fitness schedules, about 3.5% attributed the discipline directly to the responsibility of being donors. Most (87.1%) just wanted to be in good shape, while 34.1% specifically wanted to prevent chronic lifestyle diseases. These fitness activities were simply hobbies to 3.6% of them.

The majority (81.1%) had never had hospital admissions over the antecedent 2 years and 18.1% did routine medical checkups.

Most over the counter (OTC) drugs such as analgesics (61.1%). Cough mixtures, antibiotics, lozenges, and antihistamines were routinely used by 12.7%, 13.5%, 11.1%, and 11.9% respectively; 15.7% of them took herbal medications. There were no substance addictions.

Nearly half (46.5%) of the respondents admitted that the donor status had influenced their health choices in one way or the other. The setbacks to implementing multiple good health practices related mainly with time (35.4%), a feeling of satisfaction (complacency) with what was already practised (40.9%), funds (10.2%), lack of exploratory will (12.6%), and lack of proper scheduling in those without time constraints (18.1%).

## Discussion

The sex distribution is close to that of the 2021 population census of Ghana which revealed 97 males for every 100 females or 49.3% to 50.7%.<sup>10</sup> Some studies suggest that health workers are not likely to donate blood than the general population, despite their adequate knowledge of the exercise.<sup>11-12</sup> The converse finding in this research could be explained in part by the regular donation exercises organised by various health associations found in Korlebu as well as the proximity of the NBSG, which makes donation convenient. This is to say that the opportunity to donate is always very close to those that are willing.

All donors sampled were educated with many in the health sector. This prospect, though inconclusive, opens doors to the question of whether or not educated people are more likely to be voluntary donors. Even though the level of knowledge of donation may not be proportional to the donation rates, informed or educated people record higher voluntary donation numbers.<sup>3,13</sup> However, a study in China found no significant association between educational level and blood donation.<sup>13</sup>

Of the 114 (91.2% of the respondents) that were unscheduled donors, almost 92% donated blood just once a year, while up to 56% of the regular, scheduled donors (11 respondents) donated blood at least twice every year. This is consistent with studies by the WHO and another in England, which mentioned that self-motivated donors are more likely to donate frequently.<sup>3,15</sup>

Motivation for donation among the respondents mainly revolved around humanitarian values such as altruism, desire to save lives and conscience—corroborating various studies.<sup>16-18</sup> The altruistic drive is in itself linked with good mental and overall well-being according to the mental health foundation.<sup>19</sup> These motivations need to be maintained because most blood donors, at least from this study (98.4%), had never needed transfusion themselves.

Few (21.7%) of the respondents had ever deferred blood donations and their reasons were all from relatively benign conditions such as anaemia and low weight, which could in no way harm the recipients. It is remarkable that none of the participants had lifestyle-related diseases. Though inconclusive, the engaging in good health practices (discussed later) probably contributes to this finding. Other studies also posit that blood donation potentially lowers risk and improves lifestyle-related conditions like hypertension and dyslipidemia.<sup>20-21</sup> This could be a potential reason for this observation in the recurrent donors.

Common adverse reactions, such as dizziness, nausea and headaches<sup>21-23</sup> reported by 18.6% of the respondents suggests that such donors should be in optimal states of health, because combining such adverse reactions with chronic infirmities could be debilitating and potentially interrupt subsequent donations. Therefore, donors should have a lot of 'fitness reserves' to be able to tolerate these potentially debilitating adverse reactions. The 23% of respondents that prepared for donations in ways such as modifying food intake, or by food supplementation may be practicing in these to abate the possibility of experiencing adverse reactions, as the numbers closely match.

60.3% of the donors followed fitness schedules such as jogging, suggesting a high level of health discipline. This point is ratified by other trends of healthy living such as regular fruit consumption (up to 82.7% did at least weekly), and avoiding alcohol and smoking (in 75.6% and 100% respectively). Again, there was no substance addiction and those that took addictive substances such as caffeine-based products were not addicted. While 32% did not need OTCs, majority of those that needed, took painkillers (61.1%). Hospital admissions over the antecedent 2 years was less than 20%. These statistics, all of which suggest good shape, are attributable to healthy lifestyles.

Even though only 3.5% of the motivations of fitness schedules were directly attributable to the responsibility of being blood donors, 46.5% conceded that the prospect of being blood donors had made them live healthier. Following a fitness schedule is indeed just one aspect of a healthy lifestyle (as practised by 60.3% of the respondents). This shows that the responsibility of being blood donors makes a significant percentage live more healthily, and less riskily. Most of the respondents had low risk sex lives, with only 8.7% having more than one sexual partner. This implies that the risk of transfusion transmissible diseases<sup>24-26</sup> would be minimal in this population. These observations tend to corroborate a study that concluded that frequent blood donations are associated with lower morbidity and mortality even

though not perceived as a consequential health effect.<sup>27</sup> Since the entire exercise requires some health screening, it could help with early detection and treatment of certain health conditions. In this sample population, there is adequate awareness of blood donation as a result of high levels of education, especially by those in the health sector.

The survey shows laudable lifestyle in the sampled donors. Further cross-sectional studies across different population groups would be necessary for comparing outcomes. Voluntary blood donation could become a competitive practice if studies confirm improved longevity, effectively decreasing the shortage of safe blood supply in most health facilities.

### Strengths and limitations

The survey is novel as there are not many studies that cover this aspect of blood donors and donation. It therefore delivers a perspective on the lifestyle trends of blood donors as well as the impact of blood donation on health habits. However, it is limited by snowballing technique that may have introduced selection bias. This is evident in areas such as the age groups captured (youthful) and that majority were in the health sector. Furthermore, the questionnaire was not validated and there was a small sample size resulting in lack of generalisability to other populations. Finally, being a cross-sectional study limits the understanding between the temporality of the measured variables and the practice of donating blood.

### Conclusion

Voluntary blood donors from the selected low-income setting were youthful and displayed laudable degrees of health consciousness. The responsibility of being voluntary donors influenced their lifestyles, only more indirectly than directly. Motivations for healthful practices were primarily personal well-being oriented and the donor status appeared to augment these motivations, wherein lies the indirect association. Even though the healthy donor effect<sup>5</sup> has a bearing on the instantaneous health of donors in that healthy people are more likely to donate, the reverse could as well be a significant phenomenon, in the sense that blood donors are likely to live healthier (a hypothesis requiring further studies). This becomes a point of interest because nearly half of the respondents conceded that being blood donors makes them opt for healthier life choices. The association between health and donation therefore remains noteworthy, since healthy lifestyles among blood donors provide the triple advantage of improving quality of life of donors, ensuring sustainability of blood donation and ensuring safety of blood received by patients.

### Summary – Accelerating Translation

Blood donation is a lifesaving process that requires the availability of blood donors for sustainability. Voluntary blood donors are a more reliable source of blood, especially in terms of blood safety as proven by a number of researches. This article assesses the lifestyle of a sample of voluntary blood donors from a low income setting with regards to healthy living as well as their overall wellbeing.

The findings were that blood donors from the chosen low-income setting were health-conscious and engaged in good health practices. It was also found that the donor status had a significant influence on the healthy lifestyles they lived. None of the donors assessed had chronic health conditions related to lifestyle.

The conclusion from these findings was that blood donation has the potential to improve the lifestyle of donors which in turn ensures their availability for subsequent donations as well as ensuring blood safety for recipients.

## References

- Jennings CE. *Transfusion: Its History, Indications, and Modes of Application*. London: Bailliere, Tindale and Cox; 1883
- Garcia K. A Brief History on Blood Transfusion Through the Years. [Internet]. California: Stanford Blood Center; 2016 [sited 2020 November 20]. Available from: <http://stanfordbloodcentre.org/a-brief-history-of-blood-transfusion-through-the-years/>
- Towards 100% Voluntary Blood Donation: A Global Framework for Action. Geneva: World Health Organisation; 2010. Preface.
- Deepak C. Knowledge Attitude and Practices Towards Voluntary Blood Donation Among Medical Students in Barabanki. *Indian J Comm Health*. 2015; 27:386-90.
- Atsma F, Veldhuizen I, Verbeek A, de Kort W, de Vest F. Healthy Donor Effect: Its Magnitude in Health Research Among Blood donors. *Radboud Uni Med Cent*. 2011 Aug; 51(8): 1820-8. PubMed PMID: 21342203.
- Appiah T. Give Legal Backing to Blood Service [Internet]. Accra: The Ghanaian Times; 2019 [sited 2020 October 10] Available from: <http://ghanaiantimes.com.gh>
- Ghana Health Service. Ghana Health Service Regional Directorate Brong Ahafo Region—2015 Annual Report. The Service; 2016
- World Health Organisation. Blood donor selection: Guidelines on Assessing Donor Suitability for Donation. Geneva. The Organisation; 2012
- van den Hurk K, Zalpuri S, Prinsze FJ, Merz EM, de Kort WLAM. Associations of Health Status with Subsequent Blood Donor Behavior—An Alternative Perspective on the Healthy Donor Effect from Donor InSight. *Amsterdam: PLoS One*. 2017 Oct 19;12(10): e0186662. PMID: 29049357
- Ghana Statistical Service. 2021 Population and Housing Census Press Release on Provisional Results. Accra. The Service; 2021
- Sughra U, Khan WA, Imran M. Comparison of Knowledge, Attitude and Practices of Healthcare Providers and People Towards Blood Donations. *Isra Med J*. 2019; 11(2): 118-121.
- Nwogoh B, Aigberadion U, Nwannadi A. Knowledge, Attitude, and Practice of Voluntary Blood Donation Among Healthcare Workers at the University of Benin Teaching Hospital, Benin City, Nigeria. *J Blood Transfus*. 2013 Oct. PMID: 24222890
- Yu C, Lau JTF, Zhong W, Huang X, Pan C, Chen Y et al. Why Some Donors Are More Willing to Donate Platelets? A Qualitative Study On 25 Platelet Donors in Guangzhou, China. *BMC Public Health*. 2019 Dec 19(1):1671.
- Suen, LKP, Sir JY, Lee YM, Chan EA. Knowledge Level and Motivation of Hong Kong Young Adults Towards Blood Donation: a cross-sectional survey. *BMJ Open* vol. 2020 Jan 19; 10(1). PMID: 31959604
- Kuruvatti J, Prasad V, Williams R, Harrison HA, Jones RPO. Motivations for Donating Blood and Reasons Why People Lapse or Never Donate in Leeds, England: a 2001 questionnaire-based survey. *Vox Sanguinis* 2011 Apr 101(4) 333-38.
- Mohammed S, Essel HB. Motivational Factors for Blood Donation, Potential Barriers, and Knowledge About Blood Donation in First-time and Repeat Blood Donors. *BMC Hematol*. 2018 Dec 20; 18:36. PMID: 30598827.
- Ugwu AO, Madu AJ, Efobi CC, Ibegbulam OG. Pattern of Blood Donation and Characteristics of Blood Donors in Enugu, Southeast Nigeria. *Niger J Clin Pract*. 2018 Nov;21(11): 1438-1443. PMID: 30417841.
- Rosa LM, Rodrigues RSM, Nitschke RG, da Silva RDN, Ferreira JC, Baldissera JLC. Donor Procurement and Blood Donation: Historical Speeches. *Revista de Enfermagem UFPE online* 2018 Oct; 12(10): 2766-74.
- Mental health foundation. [Internet]. What are the health benefits of altruism; c2022 [cited 2022 July 31]. Available from: <http://www.mentalhealth.org.uk>
- Kamhieh-Milz S, Kamhieh-Milz J, Tauchmann Y, Ostermann T, Shah Y, Kalus U et al. Regular blood donation may help in the management of hypertension: an observational study on 292 blood donors. *Transfusion*. 2016 Mar; 56(3): 637-44. PMID: 26643612
- Uche EI, Adediran A, Damulak OD, Adeyemo TA, Akinbami AA, Akanmu AS. Lipid profile of regular blood donors. *J Blood Med* 2013 May 10; 4:39-42. PMID: 3663474
- Klinkenberg EF, in't Veld EMJH, de Wit PD, de Kort WLAM, Franssen MP. Barriers and Motivators of Ghanaian and African-Surinamese Migrants to Donate blood. *Health and Social Care in the Community* 2018 Nov; 27(3) 748-56.
- Locks MOH, Salum NC, Barros BS, Matos E, Anders JC, Schneider DG. Profile of Blood Donors Who Presented Adverse Reactions to the Donation. *Rev Bras Enferm*. 2018 Jan-Feb; 72(1) :81-87. PMID: 30916271.
- Tang X, Allain WP, Wang H, Rong X, Chen J, Huang K et al. Incidence Hepatitis B Virus Infection in Young Chinese Blood Donors Born After Mandatory Implementation of Neonatal Hepatitis B Vaccination Nationwide. *J Viral Hepat*. 2018 Sep; 25(9): 1008-1016. PMID:29624818.
- Prince AM, Brotman B, Inchauspe G, Pascual D, Nasoff M, Wang CY. Patterns and Prevalence of Hepatitis C Virus Infection in Post-transfusion Non-A, Non-B Hepatitis. *J Infect Dis*. 1993 Jun ;167(6): 1296-301. PMID: 8388901.
- Negi G, Gaur DS. Trends of Transfusion Transmissible Diseases Among Blood Donors at Uttarakhand, India. *Indian J Community Med*. 2014 Jul; 39(3): 183-6. PMID:25136161.
- Ullum H, Rostgaard K, Kamper-Jorgensen M, Reilly M, Melbye M, Nyren O et al. Blood donation and blood donor mortality after adjustment for a healthy donor effect. *Transfusion*. 2015 Oct; 55(10):2479-85. PMID: 26098293

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