

## **A DESCRIPTIVE STUDY TO ASSESS FATIGUE AND VITALITY AFTER BLOOD DONATION AMONG VOLUNTARY DONORS AT SELECTED BLOOD DONATION CAMPS.**

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### **ABSTRACT**

*Background: Voluntary blood donation is essential to maintaining a safe and sufficient blood supply. While the process is largely safe, some donors experience temporary symptoms such as fatigue or reduced vitality post-donation. Understanding these subjective experiences is crucial to improving donor care and retention. Objectives: To assess the levels of post-donation fatigue and vitality among voluntary blood donors and explore their association with demographic and donation-related variables. Methods: A descriptive cross-sectional study was conducted among 200 voluntary blood donors at selected blood donation camps. Donors aged 18–60 years, clinically stable and resting post-donation, were surveyed using a structured questionnaire approximately 20 minutes after donation. Data were analyzed using SPSS version 26, applying descriptive and inferential statistics. Results: Among 200 donors, 71% were male and 57% were repeat donors. Mild fatigue was reported by 61% of participants, moderate by 29%, and high by 10%. In terms of vitality, 41% reported high vitality, 45% moderate, and 14% low. Fatigue levels were inversely related to hydration and meal status prior to donation, and vitality was higher among donors with shorter donation durations. Conclusion: Most voluntary donors experience only mild fatigue and moderate-to-high vitality post-donation. Pre-donation hydration, nutrition, and shorter donation durations were associated with more favorable post-donation experiences. These findings can inform donor care strategies aimed at enhancing comfort and improving donor retention.*

**Keywords:** Voluntary blood donation, post-donation fatigue, vitality, donor retention, blood donation camps, donor experience, fatigue assessment

## INTRODUCTION

Voluntary blood donation is a critical component of healthcare systems, ensuring a safe and adequate supply of blood for surgeries, trauma care, chronic illnesses, and emergency interventions. Voluntary, non-remunerated donors are considered the safest source of blood and are central to public health strategies worldwide.(1) In developing countries, increasing participation in voluntary donation is both a goal and a challenge, requiring consistent public awareness and donor motivation efforts.(2)

While blood donation is generally safe, a small proportion of donors report adverse reactions, such as fatigue, dizziness, or weakness, immediately following donation.(3) These symptoms, though usually mild and transient, can affect a donor's decision to return, highlighting the importance of understanding post-donation experiences. Fatigue, in particular, is frequently cited and may result from temporary iron depletion, stress, or reduced blood volume.(4)

Iron deficiency, even in the absence of anemia, has been shown to contribute to fatigue and reduced general well-being in regular donors, particularly among women.(5) However, randomized trials suggest that iron supplementation does not always lead to significant improvements in self-reported fatigue in non-anemic donors.(6)

Psychological and physiological stress responses, including anxiety and reduced vitality, are also associated with the donation experience. These reactions can be amplified by adverse events and negatively impact donor retention.(7) Communication strategies and interpersonal engagement have shown promise in improving donor motivation and comfort, enhancing both the experience and likelihood of repeat donation.(8)

From a physiological perspective, blood donation also influences metabolic responses. Nutritional strategies, such as consuming complex carbohydrates before and simple sugars after donation, have been recommended to stabilize glucose levels and reduce fatigue symptoms.(9)

Despite the global relevance of these issues, limited research exists on post-donation fatigue and vitality in the Indian context, especially at grassroots donation camps. Understanding donors' subjective experiences of fatigue and vitality—along with related demographic and behavioral factors—can inform better post-donation care, optimize donor retention strategies, and ensure long-term sustainability of the voluntary blood donation system.(10,11)

Therefore, this study focuses on assessing the immediate post-donation feelings of fatigue and vitality among voluntary blood donors. By systematically evaluating these parameters and their associated demographic characteristics, the study seeks to promote a better understanding of donor experiences and to support evidence-based improvements in blood donation services.

## **METHODOLOGY**

### **Research Design**

A descriptive cross-sectional design was adopted to assess post-donation fatigue and vitality among voluntary blood donors.

### **Setting of the Study**

The study was conducted at selected voluntary blood donation camps organized in collaboration with local hospitals and community organizations.

### **Population and Sample**

The target population consisted of voluntary whole-blood donors aged between 18 and 60 years who completed donation and were resting in the observation area post-donation. A sample size of 200 donors was selected using a consecutive sampling technique, including all eligible and willing participants who met the inclusion criteria during the data collection period.

### **Inclusion and Exclusion Criteria**

The study included voluntary donors aged 18–60 years who were clinically stable, cooperative, and resting in the post-donation observation area. Donors who experienced immediate adverse reactions such as dizziness, fainting, or hypotension were excluded to avoid confounding of fatigue and vitality measures. Donors who were unwilling or unable to complete the questionnaire were also excluded from participation.

### **Procedure for Data Collection**

After obtaining ethical clearance and permission from camp organizers, the purpose of the study was explained to each donor, and informed consent was obtained. Data were collected approximately 20 minutes after donation, while donors were seated in the observation area. The researcher personally distributed the questionnaire, provided instructions, and ensured privacy and comfort during completion. Each participant required about 5–7 minutes to complete the tool, and responses were immediately checked for completeness and accuracy before entry into the database.

### **Data Analysis**

The collected data were coded, tabulated, and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize demographic variables and outcome measures. Inferential statistics were applied to determine significant differences in fatigue and vitality scores among subgroups. A p-value of less than 0.05 was considered statistically significant.

## RESULT

**Table 1. Distribution of Participants According to Demographic and Donation-Related Characteristics (n = 200)**

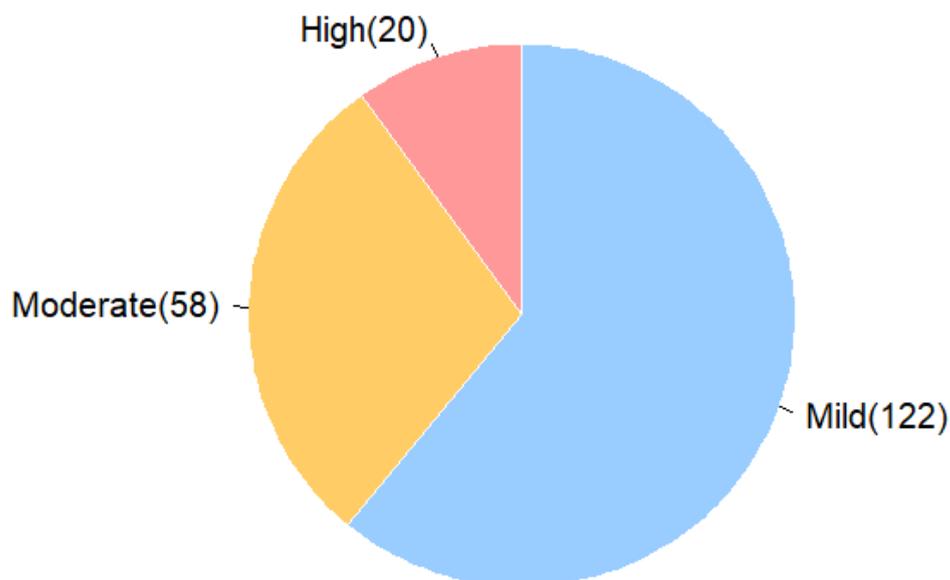
S. No.	Variable	Category	f	%
1	<b>Age Group (Years)</b>	18 – 25 years	56	28.0
		26 – 35 years	78	39.0
		36 – 45 years	42	21.0
		46 – 60 years	24	12.0
2	<b>Gender</b>	Male	142	71.0
		Female	58	29.0
3	<b>Type of Donor</b>	First-time donor	86	43.0
		Repeat donor	114	57.0
4	<b>Educational Status</b>	Secondary school	44	22.0
		Graduate	112	56.0
		Post-graduate and above	44	22.0
5	<b>Occupation</b>	Student	62	31.0
		Service/Employed	90	45.0
		Business	26	13.0
		Other (Homemaker, etc.)	22	11.0
6	<b>Pre-Donation Meal Status</b>	Taken	184	92.0
		Not taken	16	8.0
7	<b>Hydration Before Donation</b>	Adequate	176	88.0
		Inadequate	24	12.0
8	<b>Duration of Donation Process</b>	≤ 10 minutes	48	24.0
		11 – 15 minutes	126	63.0
		> 15 minutes	26	13.0

**Table 2. Distribution of Participants According to Post-Donation Fatigue Scores (n = 200)**

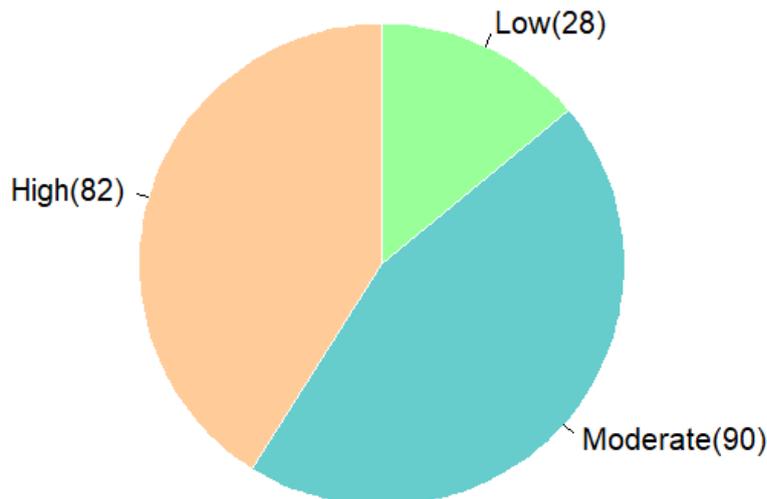
S. No.	Fatigue Level	Score Range	f	%
1	Mild Fatigue	0 – 3	122	61.0
2	Moderate Fatigue	>3 – 6	58	29.0
3	High Fatigue	>6 – 10	20	10.0

**Table 3. Distribution of Participants According to Post-Donation Vitality Scores (n = 200)**

S. No.	Vitality Level	Score Range	f	%
1	Low Vitality	4 – 12	28	14.0
2	Moderate Vitality	13 – 20	90	45.0
3	High Vitality	21 – 28	82	41.0



**Figure 1: Distribution of Participants According to Post-Donation Fatigue Levels**



**Figure 2: Distribution of Participants According to Post-Donation Vitality Levels**

## DISCUSSION

Our study aimed to assess fatigue and vitality levels among voluntary blood donors in the immediate post-donation period. The findings revealed that a majority (61%) of participants reported only mild fatigue, while 29% experienced moderate and 10% high fatigue. These results are consistent with previous research indicating that post-donation symptoms such as fatigue, dizziness, or headache are common but generally mild and short-lived, with most resolving within days. However, such symptoms may discourage some donors from returning.(12)

Additionally, our study found that most donors retained moderate (45%) to high vitality (41%) shortly after donation, with only 14% reporting low vitality. This suggests that despite minor fatigue, most donors perceived themselves as physically and mentally energetic. This aligns with research showing that many donors report positive emotional and physiological effects post-donation, such as a sense of well-being and alertness.(1)

Correlational patterns in our study also suggest links between fatigue and donor demographics. For instance, first-time donors, those with inadequate hydration, or who did not eat prior to donation tended to report higher fatigue levels. Research supports that factors like poor hydration, low pre-donation glucose levels, and extended donation times can exacerbate fatigue, especially in younger or less experienced donors.(7,9)

The mild fatigue observed in most donors could also be tied to temporary iron depletion, which, if repeated over time, may lead to iron deficiency—a known cause of post-donation fatigue and low vitality.(13,14) Although some trials have explored iron supplementation as a way to reduce fatigue in non-anemic donors, results have been mixed, suggesting a need for more personalized post-donation care strategies.(15)

Another critical point is the psychological aspect of fatigue. Donors with pre-existing anxiety or mood disorders may perceive more fatigue or reduced vitality. A study on organ donors found that affective disorders, anxiety, and low physical activity levels were strong predictors of persistent post-donation fatigue, reinforcing the importance of mental health screening during donor recruitment.(16)

Environmental and organizational factors also play a role. Studies show that post-donation counseling and donor education can reduce fatigue perception and improve vitality by enhancing confidence and comfort during and after donation.(11) Similarly, public health efforts that increase awareness about proper nutrition and hydration before donation have been shown to improve donor experience and post-donation recovery.(17,18)

Importantly, while most participants had positive experiences, a small subset (10%) experienced high fatigue, which can deter future donations. Psychological stress and fear, especially among first-time donors, are known to contribute to adverse reactions such as fainting or dizziness, which increase fatigue perception.(7,19)

Cultural and societal attitudes also influence how donors perceive post-donation symptoms. Some studies noted that fear of fatigue or weakness remains a key barrier to regular voluntary blood donation, particularly among younger donors and females, underscoring the need for targeted education campaigns.(20,21)

## CONCLUSION

Our study confirms that while most voluntary blood donors experience only mild fatigue and maintain high vitality, targeted support is crucial for those with higher symptom burdens. Nutritional support, hydration, mental health screening, and public education can enhance donor well-being and promote donor retention.

## REFERENCES

1. Babic SG, Kršek A, Batičić L. Voluntary Blood Donation in Modern Healthcare: Trends, Challenges, and Opportunities. *Epidemiologia*. 2024;5:770–84.
2. Siromani U, T T, Isaac R, Mammen JJ. Where do we Stand Towards 100% Voluntary Blood Donation are we Really Moving Towards Achieving the Goal? *International Journal of Emergency Mental Health and Human Resilience* [Internet]. 1970 Jan 1 [cited 2025 Oct 26];2015.
3. Crocco A, D'Elia D. Adverse reactions during voluntary donation of blood and/or blood components. A statistical-epidemiological study. *Blood transfusion = Trasfusione del sangue*. 2007;5 3:143–52.

4. Karregat J, Meulenbeld A, Abubakar J, Quee F, Hurk KVD, Hurk DMK van den, et al. Iron deficiency-related symptoms in non-anemic whole blood donors. *Transfusion*. 2024;64:1920–30.
5. Keller P, von Känel R, Hincapié CA, da Costa BR, Jüni P, Erlanger TE, et al. The effects of intravenous iron supplementation on fatigue and general health in non-anemic blood donors with iron deficiency: a randomized placebo-controlled superiority trial. *Sci Rep*. 2020 Aug 26;10(1):14219.
6. Pedrazzini B, Waldvogel S, Cornuz J, Vaucher P, Bize R, Tissot J, et al. The impact of iron supplementation efficiency in female blood donors with a decreased ferritin level and no anaemia. Rationale and design of a randomised controlled trial: a study protocol. *Trials*. 2009;10:4–4.
7. Hoogerwerf M, Veldhuizen I, Kort W de, Frings-Dresen M, Sluiter J. Factors associated with psychological and physiological stress reactions to blood donation: a systematic review of the literature. *Blood transfusion = Trasfusione del sangue*. 2015;13 3:354–62.
8. Abril EP. Explaining Voluntary Blood Donation from a Communication Perspective. 2016;17–33.
9. Qizi SIN. CARBOHYDRATE METABOLISM IN BLOOD DONORS. *European Journal of Medical Genetics and Clinical Biology*. 2024;
10. Shah SN, Shah AA, Handoo S, Bilal S, khan J iqbal. AWARENESS AND ATTITUDE TOWARDS VOLUNTARY BLOOD DONATION AMONG VOLUNTARY AND REPLACEMENT DONORS. A PROSPECTIVE STUDY FROM A TERTIARY CARE HOSPITAL BASED BLOOD CENTRE. *GLOBAL JOURNAL FOR RESEARCH ANALYSIS*. 2023;
11. Ajmani P. Donor Blood Collection. 2020;25–35.
12. Sweegers M, Twisk J, Quee F, Ferguson E, Hurk K van den. Whole blood donors' post-donation symptoms diminish quickly but are discouraging: Results from 6-day symptom diaries. *Transfusion*. 2021;61:811–21.
13. Kiss JE, Vassallo RR. How do we manage iron deficiency after blood donation? *British Journal of Haematology*. 2018;181(5):590–603.
14. Toolabi A. Evaluation of iron status in voluntary blood donors. 2017
15. Waldvogel S, Pedrazzini B, Vaucher P, Bize R, Cornuz J, Tissot J, et al. Clinical evaluation of iron treatment efficiency among non-anemic but iron-deficient female blood donors: a randomized controlled trial. *BMC Medicine*. 2012;10:8–8.

16. Rodrigue J, Fleishman A, Schold J, Morrissey P, Whiting J, Vella J, et al. Patterns and predictors of fatigue following living donor nephrectomy: Findings from the KDOC Study. *American Journal of Transplantation*. 2020;20:181–9.
17. Singh S, Devi K. A study to evaluate the effectiveness of planned teaching programme (PTP) on knowledge regarding voluntary blood donation among adolescence in a selected area of Gulbarga, Karnataka. 2022;
18. Omar WA. Knowledge, attitude and practice of voluntary blood donation among family donors in the National Blood Transfusion Center. *Journal of Al-Farabi for Medical Sciences*. 2024;
19. Ghodekar P, Wagh S, Fulsundar S. Reduce Complexity of Blood Donation Process And Make It Safe by Using Data Mining. *International Journal of Advance Engineering and Research Development (IJAERD)*. 2016 Dec 25;3(12):38–41.
20. Balgote S, Singhai A, Akre C, Deshkar A. Knowledge, Attitude & Practise of Voluntary Blood Donation in Students of BRLSABVM Medical College, Rajnandgaon, Chhattisgarh. *International Journal of Physiology*. 2020;
21. Anleye BA. Knowledge, Attitude, Practices, and Factors Associated with Voluntary Blood Donation among Graduating Class Students of Assosa University, Benishangul Gumuz, Ethiopia, 2018. 2020;3.