



Original

# Donors' Satisfaction with Blood Donation Process and Evaluation of the Impact on their Intention to Return for Future Donations

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## Abstract

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**Background:** The satisfaction of blood donors with the blood donation process is crucial to their recruitment and retention. This was done to determine if there is any association between the overall satisfaction of donors with the donation process and donor demographics as well as the motivating factors and barriers to future blood donation by the donors.

**Method:** Information on socio-demography, blood donation history of donors, frequency of blood donation by repeat donors, rating of the donation process, level of satisfaction with the process, motivating factors and barriers to future blood donation among other data were obtained from the donors through self-administered questionnaires. Data were analyzed using SPSS for Windows version 23.0. Significant level was set at  $P < 0.05$ .

**Result:** Majority of the donors were within the age group of 21-30years. Their mean age was  $26.54 \pm 6.68$  years. Seventy-six percent of the respondents expressed satisfaction with the entire blood donation process. First-time donors and males were more satisfied with the process than repeat donors and females, respectively. There was a statistically significant association between donors' satisfaction with their intention to donate in future ( $p=0.032$ ). However, the association between donors' satisfaction, their intention to return for future donations and donors' demographics were not statistically significant ( $p>0.05$ ). Altruism was the major motivating factor while fear of needles was cited as the main barrier to future blood donations.

**Conclusion:** Blood donors' satisfaction varies among demographic subgroups and is positively associated with their intention to return for future donations.

**Keywords:** Blood Donor, Satisfaction, Demographics, Altruism, Fear of Needle

## Introduction

Blood centers worldwide are entrusted with the mandate of providing safe, affordable and sufficient blood and products. Since long term storage of blood is not

tenable, blood centres have to continuously recruit and retain a substantial pool of blood donors in order to mitigate the ever-increasing blood supply deficits experienced in healthcare facilities.

According to the World Health Organization (WHO), the average annual global blood collection is 118.5 million units of blood. Of these, 65% are collected in developed countries, which is home to 16% of the world's population.<sup>1</sup> WHO 2021 survey involving 13,300 blood centres in 169 countries showed that 13,300 units were collected in the low-income countries, 4,400 in lower-middle-income countries and 9,300 in upper-middle-income countries, in contrast to 25,700 units in high-income countries.<sup>2</sup> In Nigeria, blood scarcity is a significant problem in healthcare settings, and this is due to a mismatch between the demand for safe blood and blood products and failure to ensure adequate blood supply owing to a myriad of factors, including lack of motivation among prospective donors. It has been established in earlier surveys that a considerable number of eligible blood donors do not donate.<sup>3-5</sup> Hence, there is a compelling need for the blood centers to upscale their blood donor recruitment and retention strategies.

Studies have shown that the satisfaction of blood donation process is crucial to their recruitment and retention.<sup>3,6,7</sup> Satisfaction is a measure of contentedness with a product or service and has a positive impact on loyalty proclivities. A study by Weidmann et al.<sup>7</sup> showed that blood donor satisfaction varied among demographic subgroups and was positively correlated with the intent to return for future donation. A related study conducted in the Netherlands, showed that majority of the potential blood donors were content with services offered at blood collection sites, though donor retention efforts were difficult due to deferral for several reasons.<sup>8</sup> Furthermore, other authors have reported that repeat donors are more likely to donate again compared to first-time donors.<sup>5,9</sup> Therefore, contentment in the donation process is a vital factor in engendering donors' allegiance.

In order to achieve the goal of providing safe and adequate blood and blood products, most blood centers across the globe embark on blood drive campaigns. The campaigns advocate for voluntary, non-remunerated blood donations and are essentially carried out in outdoor blood donation camps.<sup>10</sup> WHO recommends that 100% of the blood requirements should be from voluntary blood donors.<sup>11</sup> Studies have shown that voluntary blood donors provide the safest pool of blood compared to family replacement or commercial donors.<sup>5</sup>

The latest adoption of mobile blood drive strategy and prioritization of blood sourcing from voluntary blood donors in our centre have helped in shoring up our blood supply as well as resulted in the provision of safe blood to patients who require blood transfusion in the course of their treatment. However, the major setback has been in the retention of these donors.

The retention of active blood donors has been documented to be a challenging task for blood collection establishments globally. A study in England and North Wales showed that only 38.4 % of first-time donors made a second donation within 6 months, and 52.1% made a repeat donation within 12 months.<sup>12</sup> In a similar study conducted in the United States of America (USA), only 8% of first-time donors returned for repeat donations while about 67% never returned for further donations.<sup>13</sup> Factors that contribute to low retention of blood donors, particularly the first-time donors have been widely investigated.<sup>3,5,7,9</sup> The reasons cited by the donors for not returning for repeat donations have been reported to include unsatisfactory donation experience, untoward reactions of donation and unnecessary donor deferrals among others.<sup>14</sup> Furthermore, some workers have showed that the effects of these impediments on blood donors' return are present in both first-time and repeat donors.<sup>9,13</sup>

There has been limited discussion about the satisfaction of blood donors with the donation process in our environment and whether dissatisfaction with the process has an influence on the donors' return for future donations. To fully appreciate this issue, we analysed donor satisfaction in relation to the different aspects of the blood donation process as well as determined if there is any association between donors' characteristics and their intention to return for future donations.

## Method

### *Study site*

The survey was conducted at the National Youth Service Corps orientation camp in Nsit Atai Local Government Area (LGA) and University of Uyo Town Campus, Uyo, Akwa Ibom State, South-South Nigeria. These locations were so considered because they provide a rich pool of prospective blood donors in the state. Temporary blood collection camps were set up in the locations. The blood drives were carried out by the donor recruitment unit of University of Uyo Teaching Hospital (UUTH) Blood Bank.

### *Study Population*

The study population was eligible blood donors selected from the pool of potential blood donors who presented

at the blood donation camps. The selection was done according to the WHO donor selection criteria.<sup>2</sup> All the donors were properly sensitized and enlightened on the health benefits and safety of blood donations. The blood drive campaigns took place between April, 2023 and May, 2023.

### Study Design

This was a cross-sectional descriptive study.

### Sampling Method

Copies of self-administered questionnaires were given to a convenience sample of 120 first-time and repeat blood donors at the camps.

### Inclusion and Exclusion Criteria

Only blood donors who met the WHO blood donor selection criteria and who gave informed consent were recruited into the study while those who did not give consent were excluded.

### Data Collection

Data on socio-demography, including age, gender, tribe, marital status, prior donation history, frequency of blood donation by repeat donors, rating of the donation process, level of satisfaction with the process, motivation and barriers to future donation, and intent to return were obtained using the questionnaires. The questionnaires were given to the donors immediately after they had finished donating and retrieved afterwards. To preclude bias, donors were not allowed in the company of other donors while filling the questionnaires. The blood donation process was rated on a 5-point scale; with 1-Poor, 2-Fair, 3-Good, 4- Very Good, 5-Excellent. A score of 1-20% was categorized as poor, 21-40% - Fair, 41-60%-Good, 61-80%-Very Good, 81-100% - Excellent.

### Data Analysis

All statistical analyses were carried out using SPSS for Windows Version 23.0 (SPSS Inc., Chicago, IL, USA) and the results were presented in simple tables and chart. Descriptive statistics was used to the socio-demographic characteristics of respondents, patterns of blood donation, perceived donor satisfaction with blood donation process as well as motivators and barriers to future blood donations. Chi square test was used to assess the association between some donor characteristics and perceived donation process satisfaction as well as intention to donate blood in the future. Associations at the  $P < 0.05$  level were considered significant.

## Results

A total of 102 eligible blood donors participated in this study. They comprised 62 (60.8%) males and 40 (39.2%) females, giving a male to female ratio of 1.6:1. Most 95 (93.1%) of the participants were within the age group of 21-30years with a mean of  $26.54 \pm 6.68$  years. The great majority were first-time donors (Table 1).

**Table 1:** Socio-Demographic Profile of Blood Donors and Frequency of Donation by Donors

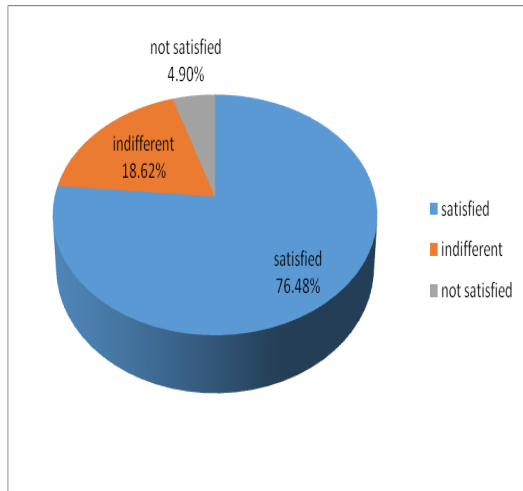
Characteristics	Frequency (%)
<b>Gender</b>	
Male	62(60.8)
Female	40(39.2)
<b>Age Group(years)</b>	
21-30	95(93.1)
31-40	4(3.9)
41-50	3(3.0)
<b>Marital Status</b>	
Married	7(6.9)
Single	95(93.1)
<b>Religion</b>	
Christians	65(63.7)
Muslims	37(36.3)
<b>Tribe</b>	
Hausa	13(12.7)
Yoruba	50(49.0)
Igbo	20(19.6)
Ibibio	4(4.0)
Oron	2(1.9)
Ijaw	3(2.9)
Ilaye	1(1.0)
Oduai	1(1.0)
Ikwere	5(4.9)
Ogu	1(1.0)
Kataf	1(1.0)
Yala	1(1.0)
<b>Donation History</b>	
First-time donors	80(80.4)
Repeat donors	20(19.6)
Number of donations for Repeat Donors (n=20)	
2-10 times	15(75.0)
More than 10 times	5(25.0)
<b>Donation Freq/Year by Repeat Donors (n=20)</b>	
Once a year	10(50.0)
Twice a year	6(30.0)
Three times a year	3(15.0)
4 times a year or more	1(5.0)

Characteristics	Frequency (%)	Characteristics	Frequency (%)
<b>Waiting Time for Blood Donation (minutes)</b>		21-30	5(4.9)
1-10	35(34.3)	More than 30	3(2.9)
11-20	25(24.5)	No response	34(33.3)

**Table 2:** Respondents' Rating of the Blood Donation Process

Blood Donation Process	n (%)				
	Poor	Fair	Good	Very Good	Excellent
Facilities at donation site	1(0.9)	10(9.8)	50(49.0)	15(14.7)	26(25.6)
Waiting period at donation site	2(1.9)	8(7.8)	49(48.0)	28(27.6)	15(14.7)
Pre-donation screening/counsel	0(0.0)	2(1.9)	45(44.1)	18(17.6)	10(9.8)
Skill of phlebotomist	0(0.0)	2(1.9)	31(30.4)	15(14.7)	12(11.8)
Post-donation care	0(0.0)	2(1.9)	33(32.4)	17(16.7)	16(15.7)
Refreshment at donation site	0(0.0)	1(0.9)	29(28.4)	12(11.8)	20(19.6)

Most of the donors were satisfied with the blood donation process (Table 2, Figure 1). Forty- nine percent and Forty-two percent rated the overall process as excellent and very good respectively. A few rated it as poor (Table 2).



Eighty-seven percent of the donors indicated their willingness to donate again in the future if asked to do so. Donors younger than 31years were more satisfied than their older counterparts, although this may be explained by the fact that majority of the donors were between the ages of 21-30years. Males were more satisfied than females with the entire process. Compared to repeat donors, first-time donors were more satisfied, and this appeared to account for most of the apparently higher satisfaction in younger donors observed in our study (Table 3).

Altruistic motive (43.1%) i.e to save lives was the principal motivating factor, followed by issuance of blood donor certificate (29.4%), donation for health reasons, that is “Donating blood is good for my health” (27.1%) and flexible blood donation schedule (20.6%) and others. The barriers to future blood donation were similarly evaluated (Table 3).

**Table 3:** Proportion of Donors satisfied with the Blood Donation Process, Intention to Return for Future Donation, Motivators and Barriers to Future Blood Donation

Donor characteristics	N (%)
<b>Donors' overall rating of blood donation process</b>	
Excellent	50 (49.0)
Very good	43(42.2)
Good	6(5.9)
Fair	1(1.0)
Poor	2 (2.0)
<b>Satisfaction by age</b>	
21-30	74(77.9)
31-40	2(50.0)
41-50	2(66.7)

Donor characteristics	N (%)
<b>Satisfaction by gender</b>	
Male	45(72.6)
Female	33(82.5)
<b>Satisfaction by Donor History</b>	
First-time Donors	71(88.8)
Repeat Donors	7(35.0)
<b>Intention for Future Donation</b>	
Yes	89(87.3)
No	3(2.9)
Indifferent	10(9.8)
<b>Motivators for Future Blood Donation</b>	
To save lives	44 (43.1)
Issuance of Blood Donor certificate	30 (29.4)
For good health	28 (27.1)
Flexible blood donation time	21(20.6)
To receive souvenirs	18(17.6)
For free blood tests	12(11.8)
Provision of refreshment	8(7.8)
<b>Barriers to Future Blood Donation</b>	
Fear of needles	25(24.4)
Fear of infection transmission	15(14.7)
Fear of donor reactions	15(14.7)
Fear of knowing my screening status	10(9.8)
Friends and family discouragement	8(7.8)
Fear of seeing blood	7(6.9)
Cultural beliefs	6(5.9)
Others	5(4.9)
Religious beliefs	3(2.9)

Furthermore, we examined the overall satisfaction of donors with the donation steps and their intention to return for future blood donation in analyses stratified by other donor characteristics. Satisfaction with the current donation process was significantly associated with intent

to return for future donation ( $P=0.032$ ), but there was no statistically significant association between the donors' demographics and their intention or willingness to donate again in future (Table 4 and Table 5).

**Table 4:** Association between some Donor Characteristics and overall level of satisfaction with Blood Donation Process

Characteristics	Overall level of satisfaction with blood donation process among respondents			Chi square Test value	P- value	Degree of freedom
	Satisfied	Indifferent	Not satisfied			
<b>Age-group</b>						
21-30	72	18	5	2.27	0.686	4
31-40	3	1	0			
41-50	3	0	0			
<b>Gender</b>						
Male	47	11	4	0.85	0.653	2
Female	31	8	1			
<b>Marital Status</b>						
Married	5	2	0	0.93	0.628	2
Single	73	17	5			
<b>Religion</b>						

Characteristics	Overall level of satisfaction with blood donation process among respondents					
	Satisfied	Indifferent	Not satisfied	Chi square Test value	P- value	Degree of freedom
Christians	51	11	3	0.402	0.817	2
Muslims	27	8	2			
<b>Donation History</b>						
First -time Donors	56	15	5	2.21	0.331	2
Repeat Donors	22	4	0			
<b>Intention for Future donation</b>						
Yes	57	8	3	9.36	0.032	4
No	10	5	2			
Indifferent	11	6	0			

**Table 5:** Association between some Donor Characteristics and Intention to return for Future Blood Donation among Respondents

Characteristics	Intention to return for future blood donation			Chi square test value	P- value	Degree of freedom
	Yes	No	Indifferent			
<b>Age Group</b>						
21-30	63	16	16	1.90	0.754	4
31-40	2	1	1			
41-50	3	0	0			
<b>Gender</b>						
Male	38	13	11	2.55	0.279	2
Female	30	4	6			
<b>Marital status</b>						
Married	6	0	1	1.97	0.160	2
Single	62	17	16			
<b>Religion</b>						
Christians	41	10	14	3.075	0.215	2
Muslims	27	7	3			
<b>Donation History</b>						
First – time Donors	49	18	15	0.48	0.788	2
Repeat Donors	13	3	4			

## Discussion

Blood transfusion is an invaluable component of modern healthcare delivery system. It can be life-saving especially in medical emergencies such as obstetric and gynecological catastrophes and for patients who have symptomatic anaemia from various medical conditions.<sup>15</sup> Voluntary blood donors provide the safest pool of donated blood compared to family replacement or remunerated donors.<sup>10</sup> Considering the level of ignorance, myths and fear regarding blood donation, there is a need for the young and educated persons in the population to take the lead in the noble course of practicing regular and voluntary blood donation to maintain adequate blood supply.

This study revealed that most of the participants were youths aged 21-30 years. This is in keeping with the WHO 2022 fact sheets on blood donors' demographics which showed that the predominant donor population in middle and low-income countries were youths in their early twenties and thirties.<sup>2</sup> It also agrees with previous studies in England<sup>12</sup> and Brazil<sup>14</sup> in which majority of the blood donors were young people within the same age bracket. The above age distribution also agrees with what was reported in studies among blood donors in Uyo and Lagos in South-South and South-Western regions of Nigeria, respectively.<sup>16,17</sup>

Most of the donors in our series were males. The finding of predominant male donor population corroborates with those of earlier studies.<sup>3,18</sup> This also affirms the WHO report that there are more male donors.<sup>4</sup> However, it is in dissonance with those of Andade Neto et al<sup>19</sup> and Ogundeyi et al<sup>20</sup> who reported female dominance in blood donation exercise. Female donation rate of 39.2% documented in this study is higher than the female participation rate of less than 30% reported by Tagny et al,<sup>21</sup> perhaps educational status of the donors may have accounted for this observation. Studies have shown that education has a critical influence on donors' disposition towards blood donation.<sup>22,23</sup> The reasons for the limited involvement of females in blood donation processes are not far-fetched given that a number of factors may prevent them from being eligible to donate. Females usually have a lower packed cell volume during certain periods of the months owing to menstrual blood losses. Several studies have documented that women experience more deferrals from donation than men, because of higher prevalence of anaemia, issues related to pregnancy, parturition, lactation and blood donation reactions.<sup>3,5,22-24</sup> Vasovagal attack and post-donation fatigue appear to be commoner in females compared to males.<sup>25</sup>

The majority of the subjects (76.5%) were satisfied with the blood donation process with 42.2% and 49.0% of them rating the process as very good and excellent respectively. This observation is in keeping with findings of Nguyen et al<sup>6</sup> and Ekwere et al<sup>23</sup> who reported high satisfaction ratings of the blood donation process by more than 75% of blood donors surveyed. Indeed, some workers have documented that the affable, courteous and proficient disposition of blood centres' staff as well as the quality of health education received prior to the blood donation exercise have salutary impact on donors' satisfaction.<sup>5,8,9</sup> All the donors in this study received health on the importance and health benefits of blood donation before the blood donation exercise and this may have influenced their decision to donate.

Of interest, first-time donors gave higher satisfaction ratings (88.8%), than the repeat donors (35.0%). Similar findings have been reported by other authors.<sup>8,23</sup> The first-time donors may have rated the process higher than repeat donors either because of the novelty of their experience, or their altruistic attitude toward blood donation because subtle deficiencies in service or performance may not be easily overlooked by the more experienced donors. Healy et al.<sup>26</sup> described blood donation as the noblest form of altruistic behavior. Altruistic acts have been shown to be an invaluable factor in engendering committed and steadfast loyalty among first-time donors.<sup>27,28</sup>

Comparable with other studies,<sup>6,23</sup> the female donors were more satisfied with the blood donation process than their male counterparts. This could possibly be ascribed to the strong altruistic orientation in women.<sup>6</sup> Steele and Coworkers<sup>27</sup> found that women are more motivated by "empathetic concern" to donate blood than men. Similarly, Glynn and colleagues<sup>29</sup> reported that women were more motivated to donate than men if they perceived a need and were more likely to be considerably influenced by other pro-social characteristics such as social responsibility and solicitude.

The satisfaction obtained from a product or service has a positive impact on devotion and intentions.<sup>9</sup> This survey has shown that majority of the donors (87.3%) expressed willingness to donate blood again in future. There was a statistically significant association between the overall satisfaction of donor with the blood donation processes and their intention to donate again in future ( $p=0.032$ ). This finding is in consonance with findings in earlier studies.<sup>6,23</sup> A study by Schreiber and associates carried out to investigate the first year donation patterns and level of commitment among first-time donors revealed that the donors were quite enthusiastic about

donating blood; however, they lacked the interest to return for future donations owing to some concerns notably poor treatment, poor service skills of the phlebotomists or other staff, or a “bad experience”. Hence, the authors advocated a robust and rigorous health education campaign aimed at recruitment and retention of eligible blood donors by blood centres.<sup>13</sup> Other workers have shown that the quality of services rendered by blood centres have a significant impact on donors' intent to return for future donations.<sup>6,14,22</sup> Therefore, satisfaction with the blood donation processes is a crucial factor in building and sustaining donors' allegiance.

In keeping with other studies,<sup>3,5,20</sup> the principal motivating factor for future donation by the donors was their desire to save lives. This desire to donate is essentially for altruistic and humanitarian reasons. Blood donation according to popular belief is considered as one of the purest forms of altruism.<sup>27</sup> This is reflected in the statistics of global blood donation. The greater part of global blood supply, and in 62 countries, 100%, of the donated blood comes from non-remunerated donors.<sup>2</sup> Other motivating factors for future donation identified in this study included donations for health reasons, receiving of souvenirs, issuance of blood donor certificate and provision of refreshment. A study among 416 college students in the US and Germany showed that over seventy percent of the respondents indicated a willingness to accept incentives in exchange for blood donation. Incentives most preferred were monetary compensation, paid leave, and blood screening tests.<sup>30</sup> Other studies have also reported respondents' strong preference for incentives as veritable motivating factor for blood donation.

Operation of flexible blood donation schedule has been documented in some studies to foster regular blood donation practices. In a study conducted by Kolins et al, 23% of irregular donors and 44% of non-donors believed non-rigid blood donation schedule could encourage blood donation.<sup>23,31,32</sup> A similar finding was recorded in the present study where 20.6% of the respondents believed that operating a flexible blood donation schedule could motivate them to return for future blood donation. Most blood donation establishments across the globe particularly in developed climes have incorporated flexibility into their blood donation schedule to bolster their operations.<sup>32</sup> The convenience in the blood donation time has been found to be alluring to all categories of eligible blood donors and it is believed that this could transcend altruism as a major motivating factor for blood donation.<sup>23,32</sup>

The respondents cited fear of needles, fear of donor reactions and other post-donation outcome, cultural and religious reasons, as barriers to their future participation in the blood donation exercise. These findings are comparable with those of previous studies which reported that the principal reasons for not donating blood were concerns about needle prick, fear of contracting diseases such as Human Immune Deficiency Virus (HIV), Hepatitis B virus (HBV) and Hepatitis C virus (HCV) infections, misuse of donated blood, obnoxious Socio-cultural and religious beliefs including, not having enough blood and not having food to eat, and exposure to witchcraft.<sup>3,5</sup> In all of these, the reasons adduced for not donating blood have been based entirely on myths, misinformation and ignorance about the health benefits and safety of blood donation. These misconceptions can be corrected through robust motivational and educational programs that can shed light on the significance of blood donation as evident in the results of previous studies.<sup>3,15,33</sup> This will lead to a swift attitudinal change by potential donors toward blood donation and by extension result in an improvement in the availability of safe blood and blood products.

#### ***Strengths and Limitations of the study***

This study has some strengths. For instance, in contrast to most donor assessment studies,<sup>34-36</sup> this study was conducted on the day of donation, and was anonymous in nature, thus engendering more honest responses. It also examined donor satisfaction, motivation and barriers to blood donation concurrently, hence we were able to reevaluate known motivators and barriers as well as determine the relationship between donor satisfaction with the blood donation process and their intention to return for future donations.

One of the limitations of this survey is that we used a convenience sample, thus our results could have been affected by sampling bias. In addition, in spite of being an anonymous questionnaire which would seem to encourage honest responses, social convenience bias is not uncommon in questions pertaining to blood donation. A study by Piliavin and Callero<sup>37</sup> showed that survey respondents could be inclined to give socially acceptable responses.

#### **Conclusion**

This study like other studies has shown that blood donor satisfaction with the donation processes varies among demographic subgroups and is significantly associated with the intent to return for future donation. Apart from altruism, other factors such as provision of incentives, donation for health benefits and operation of a flexible



blood donation schedule have been identified as important motivating factors for future blood donation. Also, concerns about needle prick, fear of donor reactions and other post-donation outcome, cultural and religious reasons, were cited as barriers that may militate against future donation. The intensification and sustenance of the current blood sourcing efforts including provision of incentives as well as operating a flexible blood donation schedule in order to facilitate blood donor retention in our centre is recommended.

### Declarations

**Ethical consideration:** An informed consent was obtained from each respondent prior to the administration of the questionnaire. Also, the study protocol was approved by the Ethics and Research Committee of UUTH before the commencement of the study.

**Authors' contribution:** This work was carried out in collaboration among all authors. Author Akpan IS contributed substantially to the conception and design, acquisition of data, analysis and interpretation of data, drafting the article and revising it critically for important intellectual content. Author Uko EE contributed substantially to acquisition of data, drafting of the article and revising it critically for important intellectual content. Author Bassey EI contributed substantially to acquisition of data, drafting of the article and revising it critically for important intellectual content. Author Asuquo IE contributed substantially to acquisition of data, drafting the article and revising it critically for important intellectual content. Author Afia RI contributed substantially to acquisition of data, drafting the article and revising it critically for important intellectual content. All authors read and approved the final manuscript.

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