

Chancellor Kafere
Alaa Garad¹

Article info:

Received 04.12.2019
Accepted 10.04.2020

UDC – 551.501.6
DOI – 10.24874/IJQR14.04-04



ASSESSMENT OF DONOR SERVICE QUALITY AT NATIONAL BLOOD SERVICE ZIMBABWE USING SERVQUAL INSTRUMENT

Abstract: *Understanding the needs of customers has become a critical factor for the success of organizations in the modern world. A blood service is similar to any other organization in that it needs to satisfy its blood donors and other customers for it to survive. The primary purpose of this paper is to assess the quality of service offered to blood donors at the National Blood Service of Zimbabwe and make appropriate recommendations for improvement where the quality level is found to be below expectations. Complex surgical and medical procedures are made possible by the use of blood transfusion, and it improves the quality of life as well as life expectancy in patients with a wide range of chronic and acute conditions (Amatya, 2013).*

Keywords: *Blood Donor; SERVQUAL; Quality Service in Zimbabwe; Healthcare Quality.*

1. Introduction

Transfusion of blood is a specialized medical procedure that involves collecting blood from one individual, the donor and giving it to another, the recipient. Human blood is capable of saving millions of lives if it can be available on time. Blood transfusions are commonly necessitated by obstetric complications, road traffic accidents, surgery, and anemia, to mention just a few. Blood can only be obtained from individuals who donate for the product to be available to patients in need. According to the World Health Organisation (2010), at least ten individuals per 1000 population should donate blood for a country to be able to meet the requirements for blood and related blood products.

The National Blood Service Zimbabwe (NBSZ), (2014, 2017) is a non-profit organization that provides blood services. It is mandated by the government of the Republic of Zimbabwe through the Ministry of Health and Child Care (MoHCC) to collect blood

from donors, process it into components, store and distribute to hospitals in the country for transfusion (<http://www.nbsz.co.zw>). The NBSZ was established in 1958 as the then Salisbury and District Blood Transfusion Service which was formed as an association of blood donors in the then Rhodesia. The NBSZ has a QMS based on the Africa Society for Blood Transfusion (AfSBT) Step-wise Accreditation Standards. These are specific standards for blood transfusion services in Africa to which they are accredited. The standards address quality requirements more or less the same as ISO9001 and also technical requirements for blood transfusion. NBSZ started implementing these standards in 2016 but has not yet been accredited as some technical requirements have not been met. Prior to that, it used to be certified to ISO 9001:2008 until 2016 when the industry's specific standard was preferred to transitioning to the then new ISO 9001:2015 standard.

¹ Corresponding author: Alaa Garad
Email: Alaa.Garad@port.ac.uk

2. Justification of This Study

Given the need to recruit and retain donors, research on the success of the donation process is an area of growing interest in the academic literature. This is shown by works published by researcher such as Güre et al., (2018); Melian-Alzola & Martin-Santana (2020). Without donated blood, NBSZ, like any blood service, cannot survive (Tailor et al., 2017). There are no perfect substitutes for blood up to date and donating blood is the only solution available to save the lives of millions of patients worldwide. Very few studies have been conducted to assess the quality of service rendered to blood donors. This study contributes to the body of knowledge on blood donor service quality. Findings and recommendations from this study may assist in the improvement of donor service quality if implemented, which in turn, result in improved donor retention and hence the availability of blood for transfusion.

NBSZ is seeking to recruit and maintain adult blood donors to meet the demand for blood in the country consistently. This is part of its strategy for the period 2015 to 2018 (National Blood Service of Zimbabwe, 2014). The recruitment of donors is being done successfully, but retention is very low. For instance, a total of 43 809 donors gave blood in 2016, and of these, 26626 (61%) were new donors. This means only 17183 donors, which is approximately 42% were retained from 40533 who donated in 2015 against a target of 70%. This is presenting challenges where NBSZ is failing to supply adequate blood consistently throughout the year with shortages experienced during school holidays. The factors affecting donor retention at NBSZ are not known.

Donor service quality is a critical factor that can influence donor retention. The World Health Organization (2010) asserts that provision of quality donor service and care is one of the four fundamental goals that each blood service must pursue to recruit and retain adequate numbers of voluntary non-remunerated blood donors for sufficient and

sustainable blood supply. There are some isolated cases where donors have raised formal complaints about the service they get at NBSZ. This could be a tip of the iceberg as not all people can raise their issues. The service quality at NBSZ has never been formally assessed. Currently, there is no data available as to the donors' expectations of the service quality as well as what they are getting. The objective is to assess the blood donor service quality at NBSZ using the SERVQUAL model. In fulfilling this objective, the study attempts to:

- Ascertain blood donor expectations and perceptions of donor service quality at NBSZ.
- Determine if there is 1) a gap between blood donor expectations and perceptions of the quality of service. 2) if there is a significant difference between female and male donors' perceptions and expectations of the service quality 3) if the blood donors' expectations and perceptions of service quality varies with age, 4) if the blood donors' expectations and perceptions of service quality varies with the number of previous blood donations made 5) Identify quality dimensions where service quality is low for improvement.

3. Literature Review

Throughout the world, about 80 million units of blood are donated every year (Saqlain, et al., 2017). Blood is in short supply and not accessible to many patients who need it, especially in Sub-Saharan Africa (Uyoga & Maitland, 2017). It is estimated that ten blood donations must be collected per thousand population for a country to meet its minimum needs for blood (World Health Organisation, 2010). In order to prevent shortages of blood, it is critical for blood banks to carefully design and implements effective donor recruitment and retention strategies taking into consideration the determinants of donor return (Volken, et al. 2015).

There are three types of donors; namely, voluntary non-remunerated donors, paid donors, and family replacement donors (World Health Organisation, 2010). NBSZ collects blood from voluntary non-remunerated donors. A voluntary non-remunerated blood donor is an individual who gives blood out of his or her own will and does not get paid in cash or kind. Family replacement donors are those who donate blood when it is required by a family member or other close community members. These give blood to directly benefit a known person in need. On the other hand, paid donors to give blood in return for payment, in cash or kind. Blood Services supply blood and blood components to hospitals and clinics where transfusion to patients takes place. These transfusing institutions are the direct customers with patients receiving the blood being indirect customers of the Blood Service. Blood donors have a special status as they provide the most critical raw material for blood service operations but cannot be classified as suppliers (Jovanović et al. 2012).

3.1. Service Quality

There are many definitions of quality put forward over the years, and there is no one universally agreed definition. According to Goetsch & Davis (2013), there are fundamental common elements that can be extracted from the various definitions of quality. These qualities involve meeting or exceeding expectations of customers; it is marked by continuous change and applies to people, processes, services, products as well as environments. The service quality concept has stimulated great interest and debate in literature due to the lack of consensus in both defining and measuring it (Wisniewski, 2001).

According to Parasuraman et al., (1985), service quality is a measure of how well the actual service performance meets customer expectations. Expectations in the context of service quality are consumers' desires or want, which is what they feel should be

offered to them by those who provide the service (Parasuraman et. al, 1988). It is not easy for the customer to evaluate service quality when compared to that of goods. The service quality concept is wide-ranging, covering both the execution process of services and outcomes thereof (Ahmed et al., 2017). According to Ladhari (2009), the critical determinants influencing service quality as perceived by the customer are intangible elements of a service, which are its perishability, inseparability, and heterogeneity. In this study, blood donor service quality is defined as the difference between blood donors' expectation for service performance and their perception of the actual service provided. Parasuraman et al., (1985) presented a model for service quality where five gaps that could affect customer's evaluation of the service quality were identified (figure 1).

Gap 1: Between consumers' expectations and management perceptions: This is also known as a knowledge gap, which arises when management and hence, the organization fails to identify the expectations of customers.

Gap 2: Between management perception and service quality specification: Also known as the design gap. This occurs when management and hence, the organization accurately identify customer expectations but do not have the necessary means to meet the requirements.

Gap 3: Between service quality specification and service delivery: This is also known as the performance gap, which arises when an organization that has the proper design or guidelines for proper quality service fails to meet the service quality requirements on delivery.

Gap 4: Between service delivery and external communications: Known as the communications gap. This occurs when there is a difference between what an organization promises its customers and the actual service delivered.

Gap 5: Between expected service and perceived service: This gap was postulated to be the aggregate of all the gaps 1 to 4 above.

Parasuraman et al. (1988) developed the SERVQUAL model to measure service quality.

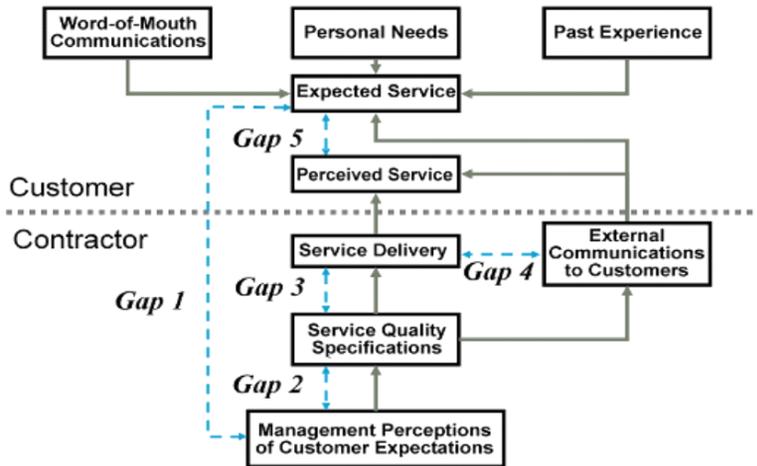


Figure 1. Gap model of service quality (Source: Parasuraman et al., 1985, p. 44)

SERVQUAL is an abbreviation for “Service Quality”. It was developed by Parasuraman et al., (1985) and further refined in 1988 (Gajewska & Piskrzyńska, 2016; Untaru, et al., 2015). It is a model for measuring service quality consisting of five dimensions, which are assurance, responsiveness, reliability, empathy, and tangibles (Oakland, 2014).

- *Tangibles* – these include the appearance of physical facilities, equipment, and personnel.
- *Reliability* – ability to perform the promised service accurately and dependably.
- *Responsiveness* – willingness to help customers and to provide prompt service.
- *Assurance* – knowledge, and courtesy of the employees and the ability of the organization and its staff to inspire trust and confidence.
- *Empathy* – caring individualized attention the organization provides its customers.

The reason for selecting SERVQUAL instrument is that it contains a two-part scale consisting of 22 items for rating expectations

as well as perceptions based on the five dimensions. This model is widely used for measuring service quality in different sectors. SERVQUAL serves to understand the difference between what the customers expect and what they perceive to be the quality of service they actually get. If expectations are higher than perceptions, the service quality will be considered poor and vice versa. Saha and Bhattacharya (2019) used SERVQUAL for similar study in India and they stated that the gap scores used in SERVQUAL would allow the blood service manager to evaluate current service quality and thus quantify the gap that exists in proposed and actual services, which have been provided to the blood donors by the blood donation service.

All tables should be incorporated into the main body of the text and must be left aligned in the column and numbered consecutively. Place the table after it is mentioned in the main text. Restrict tables to single-column width (Table 1) unless this would make them illegible.

3.2. Application of SERVQUAL

SERVQUAL has been used in assessing service quality in healthcare institutions. In a study conducted at Drug Addiction treatment centers in Iran, (Naqavi et al., 2014) they found that there was a gap between expectations and perceptions of the clients receiving treatment. Specific dimensions that needed improvement were identified and recommended for improvement, thereby potentially improving the quality of service once implemented. Contrary to these findings, in the assessment of the quality of maternity services in Poland (Gajewska & Piskrzyńska, 2016) found that performance exceeded expectations in most dimensions. Altuntas, et al., (2012) measured service quality in Turkish hospitals using the SERVQUAL model. In their study, (Altuntas et al.) they included an analytic hierarchy process (AHP), an analytic network process (ANP) weighted SERVQUAL scales that were compared to the unweighted scale. The results obtained for perceived service quality level were higher with ANP and AHP weighted SERVQUAL scale than unweighted, as the former tend to be more accurate than the latter. The general results outcome obtained was generally the same; therefore, the SERVQUAL scale can be applied without AHP, ANP, and come up

with more or less the same general outcome. Jovanovic et al. (2012) assessed the satisfaction of blood donors with the donation process quality. The authors found out that the blood donors were generally satisfied with the quality of service they were getting throughout the donation process. Jovanovic et al., (2012) found out that demographic factors such as age, gender, and the number of donations do not affect blood donor's perception of the donation service quality. Any differences in the proportion of donors by gender will be due to other determinants. There is very limited literature available on the assessment of the quality of service provided to blood donors at blood banks. Only one study by Jovanovic et al. (2012) could be retrieved from the literature search conducted. Many studies have been carried out using the SERVQUAL model in various service industries such as education, sports, financial banking, aviation, hospitality and so on but limited studies have been conducted to assess service quality at blood banks. This study attempts to partially close this gap. A conceptual framework (figure 2) for blood donor service quality was developed based on the SERVQUAL model (Parasuraman et al., 1988,) and explained the underlying principles applied to guide this study.

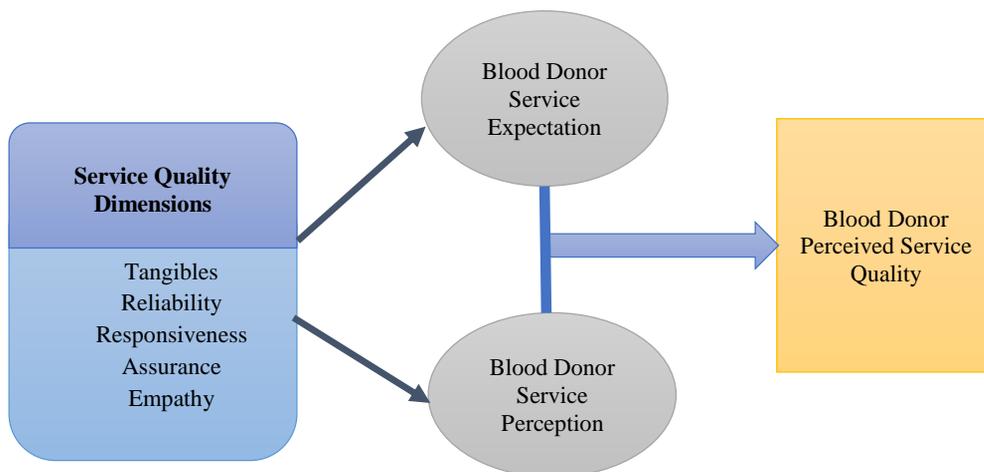


Figure 2. Conceptual framework for determining blood donor service quality

4. Methodology

Saha & Bhattacharya (2019); Melian-Alzola & Martin-Santana (2020) followed a similar process i.e. using SERVQUAL adapted to the donation process. Hence, we used similar approach. A quantitative cross-sectional study was conducted with a sample size of 400 was used in the study. This is a descriptive study to gain knowledge about blood donor perceived quality. A modified SERVQUAL questionnaire was used to collect data from blood donors. Questionnaires were issued to selected donors who would have come to NBSZ centers to donate blood. Descriptive statistics and significance tests were used to analyze the data and determine if there were significant differences between groups. The survey strategy allows for the collection of data in a way that is economical from a fairly large population (Saunders, Lewis & Thornhill, 2016). This is important in resource-limited countries like Zimbabwe, where resources for research are not easily available. This is a descriptive study that aims to gain knowledge of the blood donors' expectations and perceptions about the service quality at NBSZ (Saunders et al., 2016).

4.1. Sample and Data Collection

It is not practically possible, very expensive and would take a very long time to gather data from all blood donors in Zimbabwe. To avoid these challenges, only a sample was taken from the donor population. An optimal sample was taken to ensure the validity of the results obtained from the study. A sample size of 400 was used in the study. This was derived from Table 7.1 on sample sizes (Saunders et al., 2016). A population size of 100000 at 95% confidence interval and a 5% margin of error was used to get the sample size from the table, and a minimum sample size of 384 was obtained. It was decided to raise the sample size to a round figure of 400. A blood donor population of 43 809 (National Blood Service of Zimbabwe, 2017) was

considered and hence 100000 population used for sample size estimation. In order to cater to those who may not respond or may partially complete the questionnaires such that they are not useable for the study, an allowance of 25% was added to the sample size. A sample of 500 donors was targeted with the hope of collecting more than four hundred usable questionnaires which would give statistically significant findings. NBSZ collected a total of 64890 units of blood in 2016 (National Blood Service of Zimbabwe, 2017), giving an average collection of 5008 donations per month. Data collection for the study was conducted over a period of two months, and there were approximately 10016 donors expected to donate over the period. A minimum of two months is allowed between successive blood donations hence the two months data collection period to avoid sampling the same participants twice. A sampling method was devised where every 20th donor who visited NBSZ to donate blood during the data collection period was selected. The sampling fraction of 1/20 was determined through the use of this formula:

$$\text{Sampling fraction} = \frac{\text{Actual Sample Size}}{\text{Population}}$$

(Saunders et al., 2016)

A population of 10016 donors who are expected to donate over the period of two months was used in a calculation, giving a sampling fraction of 1/20. All blood donors who visited the NBSZ for blood donation during the study period are eligible for inclusion in the study. New donors who failed to meet NBSZ donor selection criteria and deferred before donation were excluded. A structured questionnaire was used to collect primary data from participants. A questionnaire was chosen because it minimizes variation in the responses and takes less time to code and transcribe. The questionnaire is also effective and appropriate for collecting data in descriptive research studies like this one (Saunders, et al., 2016).

The questionnaire was developed using the standard SERVQUAL instrument (Oakland, 2014) with questions modified to suit the NBSZ context. The questionnaire was piloted prior to full implementation to determine whether it captured the required data. It was also checked whether the respondents easily understood the questions and that there are no ambiguous as well as confusing questions. Testing was conducted by asking seven blood donors to answer the questionnaire, then provide feedback. All the respondents in the pilot reported that all questions were clear, easy to understand and did not encounter challenges in answering them. However, all reported that two sets of questions covering the 22 items for perceptions and expectations were too many, and it was taking too long to complete, which would be an inconvenience to the donors. Following this feedback, the questionnaire was redesigned with the layout changed to make it more compact and easier to complete. The questions for both perceptions and expectations were placed on the one-page side by side. This helped reduce the time to complete the questionnaire as respondents were able to rate both perception and expectation at the same time for any given item. A second pilot was conducted again with seven blood donor participants. The feedback was positive, although one participant did raise the issue that the questionnaire was too long.

The questionnaire was self-administered and was completed by blood donors enrolled in the study. The questionnaires were given to a sample of blood donors who came to donate blood at NBSZ centers from the 1st of August 2018 to the 30th of September 2018. The donors selected according to the sample selection method above were approached after completing the blood donation process when they were having their refreshments and verbally asked if they are willing to participate in the study. The purpose and aim of the study were explained to the prospective participants giving them assurance of confidentiality. Questionnaires were issued to the donors who would have agreed to

participate in the study and completed them in the absence of NBSZ members of staff while having their refreshments. A locked box was made available where the completed questionnaires were dropped. Data obtained from questionnaires for gender, age ranges, number of donation ranges and dimensions were coded using numerical codes. The data were entered in Epi Info Version 3.5.4. After completion of data entry, the data were exported to Microsoft Excel to allow easy importation into the statistical analysis software. Analysis of the data was done using Stata 15 statistical package. Descriptive statistics were used to analyze demographic data. The *t*-test in Stata 15 was used to analyze the data for relationships of the expectations and perceptions of each other and to demographic data. The Kruskal-Wallis equality of populations rank test was used to test if there was variation in expectations and perceptions with age and number of blood donations.

4.2. Questionnaires Analysis

500 questionnaires were issued at the five NBSZ branches across the country namely Harare, Bulawayo, Mutare, Gweru and Masvingo. Of these, 431 (86%) were completed and submitted. Following the review and checking of the completed questionnaires, 386 were found usable. The remaining 45 were partially completed and could not be included for analysis. Section A of the questionnaire used for data collection sought to gather information about respondents' demographics. Information collected included gender, age, race, and the number of previous blood donations made by the donor. Demographics are important in this study to help determine if the respondents in this study are a proper representative sample of the blood donor population in Zimbabwe; this dimension was supported by Chen et al., (2019), where they grouped subjects according to gender, education and age and explored the differences in the value and cost factors of different groups. The information

was also used to analyze if there are differences in expectations and perception of service quality with demographics. A

summary of respondents' demographic profile is presented in Table 1 below.

Table 1. Demographic profile of respondents

Variable		Frequency	Percentage
Gender	Male	226	58.55
	Female	160	41.45
	Total	386	100.00
Age	16 - 20	151	39.12
	21 - 30	89	23.06
	31 - 40	88	22.80
	41 - 50	34	8.81
	>50	24	6.22
Race	African	373	96.63
	European	13	3.37
Number of previous donations	1 - 5	161	41.71
	6 - 10	83	21.50
	11 - 15	52	13.47
	16 - 20	21	5.44
	21 - 25	33	8.55
	>25	36	9.33

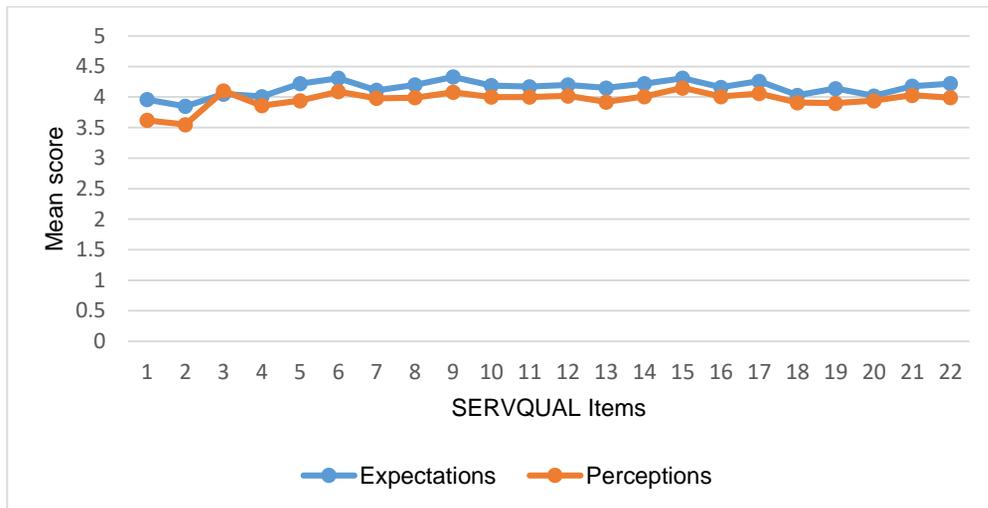


Figure 3. Donor expectations and perceptions

The scores for expectations and perceptions as rated by respondents were analyzed using descriptive statistics. The overall mean expectations score observed (4.15) was higher than the overall perceptions score (3.96) thus giving a gap of -0.19 between the two. It was observed that the average score for expectations in 21 of the 22 items of the

modified SERVQUAL instrument used was higher than the corresponding average perception scores. Item number 3 on the dressing of NBSZ staff is the only one with average perception score, which was higher than expected indicating that blood donors are impressed with the appearance of staff. The average scores obtained for each item, the

standard deviations and difference between the perceptions and expectations scores are summarized in Table 2 below. From Figure 3, it can be seen that the expectations line is above the perceptions line.

When stratified by the quality dimensions, the average scores for expectations are still higher than those for perceptions for all and hence negative P-E gaps. Reliability dimension had the largest gap score of -0.22, while empathy had the smallest gap score (-

0.17). The P-E mean scores gap for the tangibles dimension (-0.19) was the same as overall recorded for all dimensions. Reliability and responsiveness dimensions had average P-E gaps slightly above the grand meanwhile assurance, and empathy had gaps below the grand mean. It can be seen from Figure 4 below that the average perceptions and expectation scores varied across dimensions with both highest in the assurance dimension while lowest in the tangibles dimension.

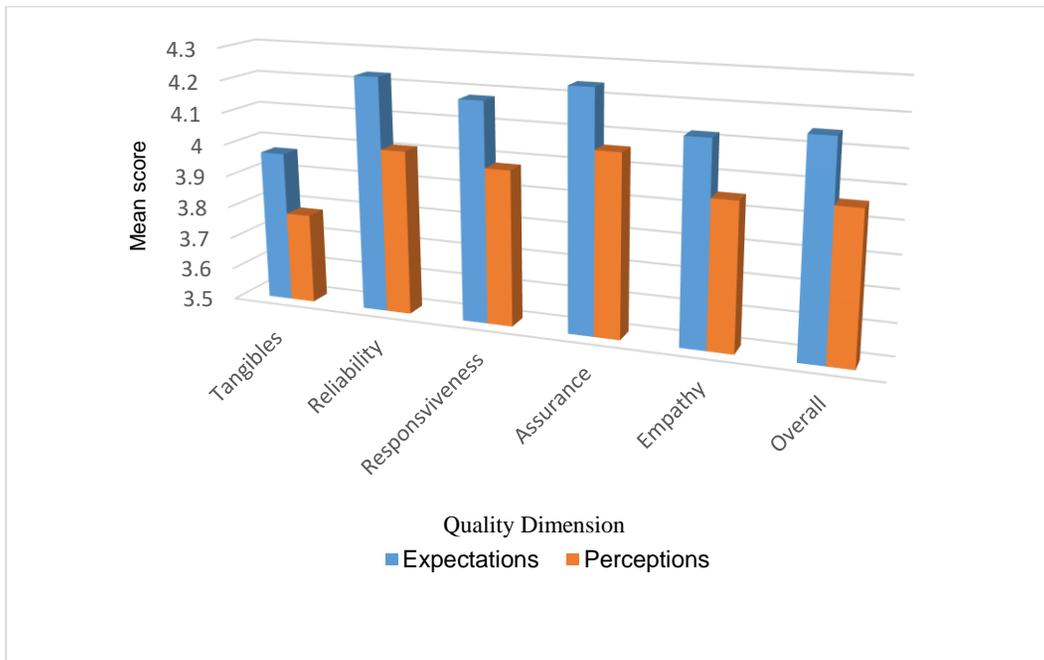


Figure 4. Donor expectations and perceptions by dimensions

4.3. Hypothesis Testing: Overall Service Quality

The following hypothesis was formulated to test if there is a statistically significant difference between blood donors’ expectations and perceptions:

H1= the blood donors’ overall perceptions and expectations are equal.

H0= the blood donors’ overall perceptions are lower than expectations.

A two-sample t-test was run in Stata 15. There was a statistically significant difference between expectations and perceptions p=0.00 at a 95% confidence interval.

- Tangibles dimension:

The following hypothesis was formulated to test if there is a statistically significant difference between blood donors’ perceptions and expectations on the tangibles dimension:

H1= the blood donors’ overall perceptions and expectations on tangibles are equal.

H0= the blood donors' overall perceptions on tangibles are lower than expectations.

A two-sample t-test was run in Stata 15. There was a statistically significant difference between expectations and perceptions ($p=0.00$ at 95% confidence interval).

- Reliability dimension:

The following hypothesis was formulated to test if there is a statistically significant difference between blood donors' perceptions and expectations on reliability dimension.

H1= the blood donors' overall perceptions and expectations on reliability are equal.

H0= the blood donors' overall perceptions on reliability are lower than expectations.

A two-sample t-test was run in Stata 15. There was a statistically significant difference between expectations and perceptions ($p=0.00$ at 95% confidence interval).

- Responsiveness dimension:

The following hypothesis was formulated to test if there is a statistically significant difference between blood donors' perceptions and expectations under the responsiveness dimension.

H1= the blood donors' overall perceptions and expectations on responsiveness are equal.

H0= the blood donors' overall perceptions on responsiveness are lower than expectations.

A two-sample t-test was run in Stata 15. There was a statistically significant difference between expectations and perceptions ($p=0.00$ at 95% confidence interval).

- Assurance:

The following hypothesis was formulated to test if there is a statistically significant difference between blood donors' perceptions and expectations under the assurance dimension.

H1= the blood donors' overall perceptions and expectations on assurance are equal.

H0= the blood donors' overall perceptions on assurance are lower than expectations.

A two-sample t-test was run in Stata 15. There was a statistically significant difference between expectations and perceptions ($p=0.00$ at 95% confidence interval).

- Empathy:

The following hypothesis was formulated to test if there is a statistically significant difference between perceptions and expectations under the empathy dimension.

H1= the blood donors' overall perceptions and expectations on empathy are equal.

H0= the blood donors' overall perceptions of empathy are lower than expectations.

A two-sample t-test was run in Stata 15. There was a statistically significant difference between expectations and perceptions ($p=0.00$ at 95% confidence interval).

- Expectations and perceptions by gender (figure 5):

With the exception of the empathy dimension, the expectations mean scores were higher in males (4.17) than females (4.12). Overall perceptions mean scores for all dimensions for males (4.03) were also higher than those of females (3.87). The gap score (perceptions-expectations) for both males and females are negative for all dimensions with gaps larger in females than males for all dimensions except the tangibles. The overall P-E gap for males (-0.14) is smaller than the overall for all respondents (-0.19) while this mean is exceeded in females where a gap of -0.25 was observed.

Paired t-test was used to test the means of perceptions and expectations between male and female respondents. There was no statistically significant difference between the means of expectations scores for males and females ($p=0.4793$). There was, however, statistically significant difference between means of perception scores for males and females ($p= 0.0323$). From the grand means analysis, males had higher positive perception than females.

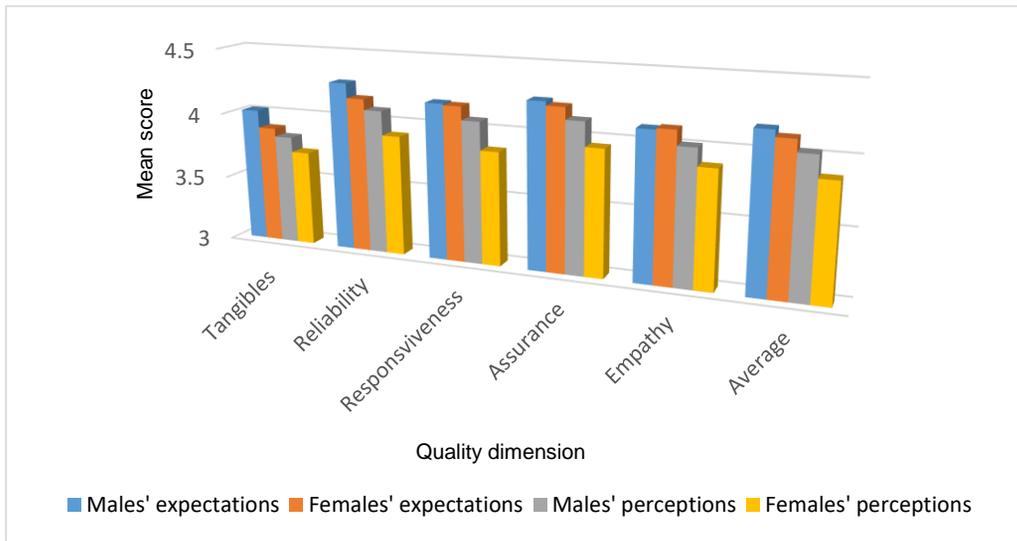


Figure 5. Donor expectations and perceptions by gender

Donor expectations and perceptions by age (figure 6):

The highest overall perceptions and expectations average scores were recorded for the 41 to 50 years age group, while the lowest was recorded for the above 50 years

age group (Table 5). The gap between mean perceptions and expectations scores was negative for all age groups in all dimensions. However, the more than 50 years age group had the smallest P-E gap (-0.07) followed by the 21 to 30 years age group with -0.15 difference.

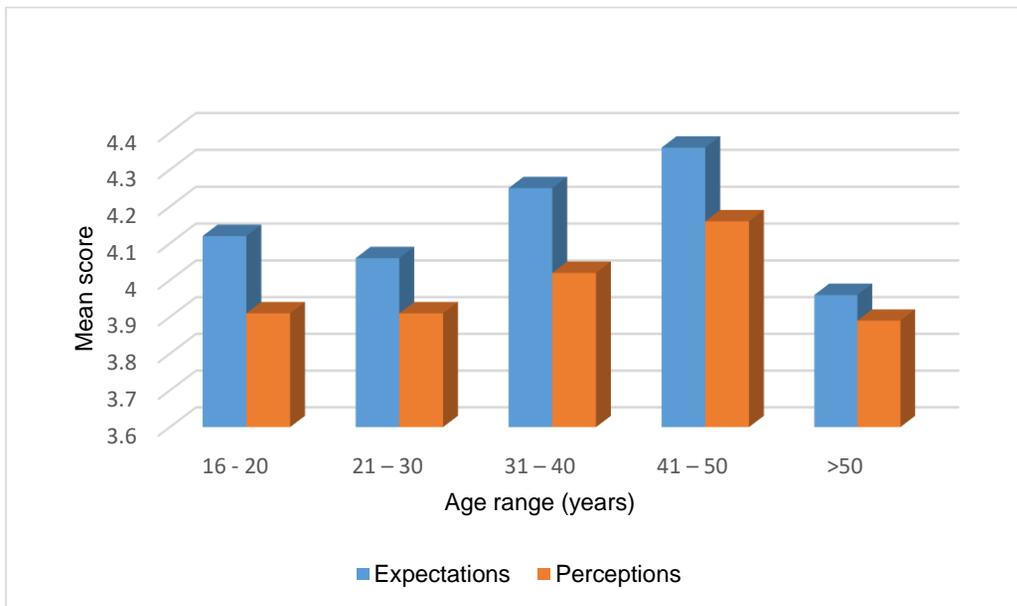


Figure 6. Donor expectations and perceptions by age

As the data was non-normal, the Kruskal-Wallis test was used to test the means of perceptions and expectations scores for the five different age groups. There were no statistically significant differences among the means of expectations scores for the five groups ($p=0.2511$). Similarly, there were no statistically significant differences among the means of perception scores for the five groups ($p=0.2307$).

Donor expectations and perceptions by number of previous donations (figure 7):

Donors with more than 25 donations recorded the highest mean expectations score (4.38) as well as perceptions score (4.12). The gap between perceptions and expectations mean scores were negative for all groups with the largest observed in the group of donors with between 6 and 10 donations with a gap of -0.30 which is higher than the overall gap recorded for all respondents (-0.19). Those with 16 to 20 and more than 25 donations also had P-E gaps above the overall score, with scores gaps of -0.25 and -0.26 respectively.

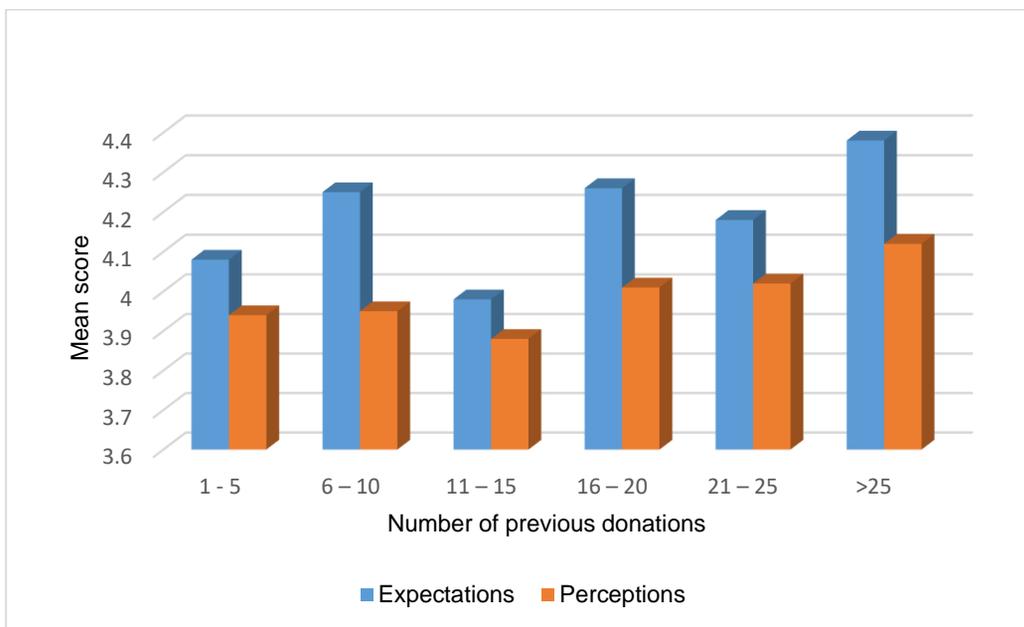


Figure 7. Donor expectations and perceptions by the number of donations

The Kruskal-Wallis test was used to test the six means of perceptions scores and six means of expectations scores for the different ranges of a number of donations. There were no statistically significant differences among the means of perceptions scores for all the six groups ($p=0.4146$). There were, however, statistically significant differences among the means of expectation scores for the six groups ($p=0.0161$).

- Open-ended questions:

The response rate in Section C of the questionnaire on open-ended questions was

low. Only 187 (48%) of the 386 respondents answered at least one question in Section C.

- Donors' recommendations for improvement:

These were solicited through question 1 of Section C of the questionnaire which read; "What do you want changed to improve the quality of service you get from NBS?"

There were 124 respondents, constituting 32% of the 386 respondents in the study who answered the question. Changes were frequently requested in offering t-shirts to

donors (20%), use of modern equipment (15%), refreshments (15%) and waiting times (11%). A significant proportion (15%) of

donors indicated that everything was fine, and there was nothing to change.

Table 1. Summary of donors’ recommendations for improvement

Recommendation	Frequency	Percentage
Give donors incentives such as t-shirts regularly	25	20%
NBSZ to use modern equipment and technology	19	15%
Everything fine, nothing to improve	19	15%
Improve donor refreshments	18	15%
Reduce donor waiting time before donating	13	11%
Reduce the cost of blood to patients	9	7%
Improve on punctuality on mobile sites	7	6%
NBSZ to pay donors for blood	7	6%
NBSZ to offer scholarships to students	3	2%
Improve communication	2	2%
Employee dressing	1	1%
Total	123	100%

- Donors’ ease of communication with NBSZ:

This was asked through question 2 of Section C of the questionnaire which read; “How easy is it to communicate any issues you want to be improved to NBSZ?”

A total of 147 respondents (38%) answered the question. Of these, 93 (63%) indicated that it is easy to communicate with NBSZ, while 54 (37%) indicated that it is not easy. There were 38 (26%) of respondents to this question who urged NBSZ to make use of social media; in particular, WhatsApp to enhance communication and 9 (6%) requested NBSZ to open centers in small towns where there are none. 83 respondents answered the question; with 48 (59%) indicating that the quality at NBSZ was good while 35 (41%) indicating that there is a need to improve.

5. Discussion and Conclusion

As mentioned earlier in this paper, there is no readily available literature on the assessment of blood donor service quality for easy comparison of results. Only one study was retrieved, which was carried out on blood donors. Results obtained in this study are contrary to the findings of Jovanovic et al.

(2012) who found high satisfaction of donors with the donation process as well as no association between donor perceptions of service quality with demographics. In the current study, the donors are not satisfied as their expectations are not met, and there was also a variation on donor perceptions with gender where these were higher in males than females. Although their study was in a different field where they assessed service quality in sport, Fişne et al., (2017) found the expectations of females to be higher than males. This is not the case in the current where the expectations were the same between males and females but different in perceptions where these were lower in females. The low perceptions among female donors could be one of the reasons contributing to a lower proportion of female donors. The response to open-ended questions of the questionnaire was very low. The reasons why respondents opted not to answer the questions could not be established. This could be due to a long questionnaire, which resulted in respondents spending time on the ratings and could not find time to complete the open-ended questions. This area still needs to be explored further. Those who did not respond could have responded in a particular manner that could affect all results; hence, the validity of these results cannot be

guaranteed. The following are the key conclusions:

The blood donors' expectations, as well as perceptions of the service quality at NBSZ, was determined and documented. The mean perceptions and expectations scores were 3.96 and 4.15, respectively. After statistical analysis of the results of the assessment of blood donor service quality using the SERVQUAL instrument, it was concluded that the perception of blood donors regarding the service quality of NBSZ is less than their expectations. From the findings of the study, a perceptions-expectations gap of -0.19 was recorded between means. There was no statistically significant difference between the expectations of males and female blood donors. There was, however, a significant difference in the perceptions of service quality with overall perceptions of male donors being higher than those of females. The blood donors' perceptions and expectations of service quality do not vary with the age of the donors.

There was no variation in the blood donors' perceptions of service quality with the number of donations made. There was a statistically significant difference in the expectations of blood donors with a different number of donations. The service quality is low in all the five quality dimensions as the expectations exceed perceptions. All dimensions that are tangibles, reliability, responsiveness, assurance, and empathy, therefore, need improvement to meet and possibly exceed the expectations of the blood donors. The donors are not satisfied as their expectations are not met, as indicated by negative gaps found in all five SERVQUAL dimensions of service quality with reliability having the highest negative gap. This is consistent with findings by Rezaei et al. (2018) in a systematic review and meta-analysis of literature on service quality in Iranian health institutions. The least negative gap was in the empathy dimension which is one of the NBSZ's core values and has received attention in recent years although more still needs to be done to meet or exceed

donor expectations. In a study by Dopeykar et al. (2018) on patients visiting a Specialised Dental Clinic, females had larger negative gaps than males. Consistent findings were reported in a systematic review study (Teshnizi et al., 2018) where larger negative gaps were reported in females than males. The low perceptions among female donors could be one of the reasons contributing to a lower proportion of female donors, who constitute approximately 44% of Zimbabwean blood donors. However, extent to which this is contributing cannot be readily established as there are other factors affecting female donors such as high prevalence of anaemia among pre-menopausal women resulting in more women failing pre-donation haemoglobin screening tests (Booth et al., 2014). Globally, only 30% of blood donations are from females (World Health Organisation, 2017) further supporting the idea that there are more factors behind low blood donations by females.

Although most Zimbabwean blood donors are in the 16 – 20 years age group with proportions decreasing with increasing age, this study found no variation in their expectations and perception of service quality with age. Therefore, there is no evidence to support the notion that as blood donors grow older, they cease to donate in response to poor donor service quality. Low-income countries rely more on blood donations from young blood donors between ages of 16 -18 years (World Health Organisation, 2017). There was no variation in the blood donors' perceptions of service quality with the number of donations made. This shows that all blood donors are treated equally and fairly by the NBSZ and hence similar assessment across donors from new to long time donors. Expectations were not uniform across all groups with statistically significant differences demonstrated. Negative gaps were observed across all groups with the highest (-0,30) in the 6-10 donations group and no specific pattern was followed.

6. Recommendations

This study could bring in new dimensions to the service provision of blood donation based on the 41% of respondents believe that there should be improvement to the quality of service. NBSZ needs to improve its service quality in all dimensions of service quality to meet the expectations of the blood donors. The following specific recommendations are made to NBSZ for consideration. The researchers suggests further areas of investigation that was not addressed in this study, however it seems worthy to study according to Zucoloto et al. (2019) who suggested the need to further investigate and overthrow myths and taboos that distances categories of populations from blood donation. Another recommendation for future research is the need to enhance methodologies to empower inspirational state of mind by improving employees code of conduct, better compensations, and need to develop strong attitude to work hard for both society and workplace, so that, the employees can convey better services to the blood contributors (Saha and Bhattacharya, 2019). In addition, educational approach focusing on females' health is relevant since the main barriers to blood donation among them are related to the health care, which are often considered temporary deferral factors. In addition, there are practical recommendation for the management of NBSZ, to provide adequate and continual customer service training to staff who directly interface with blood donors and other stakeholders. Employee training is the easiest and very

effective way of improving service quality and reducing heterogeneity (Satpathy et al., 2017). Invest in capital items such as modern equipment and refurbish premises to improve their appearance. This would complement the already well-dressed staff in improving the perceptions of the tangibles dimension. Conduct a survey to determine the specific needs and expectations of female donors. Once these are known, plans and strategies need to be put in place to address these. This will help improve female donors' perceptions of service quality and possibly increase the proportion of females who donate blood. When going on a mobile blood drive where many donors are expected, NBSZ should send an adequate number of staff to enable donors to be attended to timeously. This will help improve the responsiveness dimension, as some donors are currently not happy with the time taken to offer services. Provide donors with incentives such as NBSZ branded t-shirts at least once annually. These motivate donors to keep on donating blood. Corporates can be approached and asked to sponsor some of these t-shirts to reduce the impact on the NBSZ budget. In addition to the existing Facebook and Twitter social media platforms, create WhatsApp platforms for communicating with donors. These have wider coverage than the existing platforms and can help communicate with and mobilize donors.

Acknowledgements: The authors would like to express their gratitude to the National Blood Service Zimbabwe management and staff for their support, which made the study a success.

References:

- Ahmed, R. R., Vveinhardt, J., Štreimikienė, D., Ashraf, M., & Channar, Z. A. (2017). Modified SERVQUAL model and effects of customer attitude and technology on customer satisfaction in the banking industry: mediation, moderation and conditional process analysis. *Journal of Business Economics & Management*, 18(5), 974. doi:10.3846/16111699.2017.1368034
- Altuntas, S., Dereli, T., & Yilmaz, M. K. (2012). Multi-criteria decision-making methods based weighted SERVQUAL scales to measure perceived service quality in hospitals: a case study from Turkey. *Total Quality Management & Business Excellence*, 23(11/12), 1379-1395. doi:10.1080/14783363.2012.661136

- Amatya, M. (2013). Study on Knowledge Attitude and Practice of Blood Donation among Students of Different Colleges of Kathmandu Nepal. *International Journal of Pharmaceutical & Biological Archive*, 4(3), 424-428. Retrieved from <https://pdfs.semanticscholar.org/bace/fbbfecbe9f2052cfdc81f8ae0801bd9328a3.pdf>
- Chen, X., Wu, S., & Guo, X. (2019). Analyses of factors influencing Chinese repeated blood donation behavior: Delivered value theory perspective. *Industrial Management & Data Systems*, 120(3), 486-507. <https://doi.org/10.1108/IMDS-09-2019-0509>
- Dopeykar, N., Bahadori, M., Mehdizadeh, P., Ravangard, R., Salesi, M., & Hosseini, S. (2018). Assessing the quality of dental services using SERVQUAL model. *Dental Research Journal*, 15(6), 430-436. doi:10.4103/1735-3327.245230
- Fişne, M., Gül, M., & Soygüden, A. (2017). Assessment of Expectations and Perceptions of Sport Business Customers for Service Quality: A Study of Sport Business Sector in Sivas, Turkey. *Pamukkale Journal of Sport Sciences*, 8, 1-9.
- Gajewska, P., & Piskrzyńska, K. (2016). Measuring Quality of Maternity Services Using the ServQual Method. *Regional Formation and Development Studies*, 20(3), 50-59. doi: <http://dx.doi.org/10.15181/rfds.v20i3.1343>
- Goetsch, D. L., & Davis, S. (2013). *Quality Management for Organizational Excellence* (7th ed.). Pearson New International Edition. Pearson. Retrieved from <http://www.myilibrary.com?ID=527021>
- Güre SB, Carello G, Lanzarone E, Yalçındağ S (2018) Unaddressed problems and research perspectives in scheduling blood collection from donors. *Prod Plan Control*, 29, 84-90. <https://doi.org/10.1080/09537287.2017.1367860>
- Jovanović, R., Radlovački, V., Pečujlija, M., Kamberović, B., Delić, M., & Grujić, J. (2012). Assessment of blood donors' satisfaction and measures to be taken to improve quality in transfusion service establishments. *Medicinski Glasnik*, 9(2), 231-238. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=79820866&site=eds-live>
- Ladhari, R. (2009). A review of twenty years of SERVQUAL research. *International Journal of Quality and Service Sciences*, 2, 172. <https://doi.org/10.1108/17566690910971445>
- Melián-Alzola, L., & Martín-Santana, J. D. (2020) Service quality in blood donation: satisfaction, trust and loyalty. *Service Business*, 14, 101-129 <https://doi.org/10.1007/s11628-019-00411-7>
- Miriane L. Zucolotoa, M. L., Gonçalvesb, T. T., Gilchristc, P. T., Custerb, B., McFarlandd, W., & Martinez, E. Z (2019), Factors that contribute to blood donation behavior among primary healthcare users: A structural approach. *Transfusion and Apheresis Science*, 58(5), 663-668.
- Naqavi, M. R., Refaiee, R., Baneshi, M. R., & Nakhaee, N. (2014). Analysis of Gap in Service Quality in Drug Addiction Treatment Centers of Kerman, Iran, Using SERVQUAL Model. *Addiction & Health*, 6(3/4), 85-92. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=116338791&site=eds-live>
- National Blood Service Zimbabwe. (2014). *Strategic Plan 2015-2018*. Unpublished internal document.
- National Blood Service Zimbabwe. (2017). *2016 Annual Report*. Unpublished internal document.
- Oakland, J. S. (2014). *Total Quality Management and Operational Excellence* (4th ed.). Retrieved from <http://lib.myilibrary.com/Open.aspx?id=602103>

- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64(1), 12-40. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=pbh&AN=6353339&site=eds-live>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research, *The Journal of Marketing*, 49, 41-50. <https://doi.org/10.2307/1251430>
- Rezaei, S., Hajizadeh, M., Zandian, H., Fathi, A., & Nouri, B. (2018). Service quality in Iranian hospitals: A systematic review and meta-analysis. *Medical Journal of the Islamic Republic of Iran*, 32(1), 59. doi:10.14196/mjiri.32.59
- Saha, S., & Bhattacharya, J. (2019), Analyzing the Blood Bank Service Quality from Indian Blood Donors' Perspective: An Empirical Evidence. *Indian Journal of Community Medicine*, 44(1), 55-61. doi: 10.4103/ijcm.IJCM_237_18
- Saqlain, N., Ahmed, N., Ahmed, A., & Hareem, S. (2017). Blood Donation; Knowledge, Attitude and Beliefs of the Female Attendants. *Professional Medical Journal*, 24(12), 1-5. doi:10.17957/TPMJ/17.4003
- Satpathy, I., Patnaik, B. C. M., & Kumar, S. (2017). Service Marketing and Service Quality-A Conceptual Framework. *International Journal of Research in Management, Economics and Commerce*, 7(12), 74-80. Retrieved from https://www.researchgate.net/publication/321937079_Service_Marketing_and_Service_Quality-_A_conceptual_framework
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students* (7th ed.). Retrieved from <http://lib.mylibrary.com/Open.aspx?id=819487>
- Tailor, H. J., Patel, P. R., Prasad Pandya, A. N., & Mangukiya, S. (2017). Study of Various Hematological Parameters and Iron Status among Voluntary Blood Donors. *International Journal of Medicine & Public Health*, 7(1), 61-65. doi:10.5530/ijmedph.2017.1.11
- Teshnizi, S. H., Aghamolaei, T., Kahnouji, K., Teshnizi, S. M. H., & Ghani, J. (2018). Assessing quality of health services with the SERVQUAL model in Iran. A systematic review and meta-analysis. *International Journal for Quality in Health Care*, 30(2), 82-89. doi:10.1093/intqhc/mzx200
- Untaru, E. N., Ispas, A., & Dan, I. (2015). Assessing the Quality of Banking Services using the SERVQUAL Model. *Romanian Journal of Marketing*, 2, 84-92. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=108599030&site=eds-live>
- Uyoga, S., & Maitland, K. (2017). Transfusion Issues for African Children: the need for more research. *Transfusion Today*, 110, 9.
- Volken, T., Buser, A., Holbro, A., Bart, T., & Infanti, L. (2015). Blood donor to inactive donor transition in the Basel region between 1996 and 2011: a retrospective cohort study. *Vox sanguinis*, 109(2), 155-162. doi: 10.1111/vox.12269
- Wisniewski, M. (2001). Using SERVQUAL to assess customer satisfaction with public sector services. *Managing Service Quality*, 11(6), 380-388. <https://doi.org/10.1108/EUM0000000006279>
- World Health Organisation. (2010). Towards 100% Voluntary Blood Donation – A Global Framework for Action. Retrieved from http://www.who.int/bloodsafety/publications/9789241599696_eng.pdf?ua=1

Chancelar Kafere

The National Blood Service
Zimbabwe, Harare,
Zimbabwe
CKafere@ymail.com

Alaa Garad

Univeristy of Portsmouth
Business School,
Portsmouth, UK
Alaa.Garad@port.ac.uk

APPENDIX A: STUDY QUESTIONNAIRE

Study Questionnaire

Dear Donor,
 My name is XXXX. I am conducting a research titled “*Assessment of Donor Service Quality at National Blood Service Zimbabwe using SERVQUAL Instrument*”. The aim of the research is to determine the service quality expectations of blood donors and their perceptions of the service being currently offered so that recommendations for improvement can be made where expectations are not being met. The study will be conducted through administration of this questionnaire to blood donors. May you kindly assist by answering the following questions as honest as you can. Responses are completely anonymous, you are not required to write your name or any identifier on this questionnaire. Participation in this study is strictly voluntary; you have a right to refuse to participate at any stage. If you have any concerns, please raise them with person distributing this document or the undersigned.

Sincerely yours,
 XXXXX
 Email address: [XXX](#); Cell: +XXX

Instructions

1. The questionnaire is in three sections.
 - The first part (Section A) asks about your demographic details.
 - The second part (Section B) requires you to rank NBSZ according to what you expect it to provide and your experiences and perceptions.
 - The last section (Section C) consists of open-ended questions.
2. Where boxes are provided, indicate your answer by ticking the appropriate box.
3. Do not write your name or any form of identity on the questionnaire.

Section A: Demographics

1. Gender

Male		Female	
------	--	--------	--

2. Race

African		European		Asian		Other (specify)	
---------	--	----------	--	-------	--	-----------------	--

3. Age range in years

16 - 20		21 - 30		31 - 40		41 - 50		>50	
---------	--	---------	--	---------	--	---------	--	-----	--

4. Number of blood donations made to date

1 - 5		6 - 10		11 - 15		16 - 20		21 -25		>25	
-------	--	--------	--	---------	--	---------	--	--------	--	-----	--

Section B : Expectations and Perceptions

For sections B, rate your responses as guided in table below

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Expectations This deals with your opinions/feelings on what you expect of NBSZ. Kindly tick [√] in the box with number that corresponds to your rating.						Perceptions Please rate each statement based on what you experienced at NBSZ. Kindly tick [√] in the box with number that corresponds to your rating.					
Statement	Score					Statement	Score				
	1	2	3	4	5		1	2	3	4	5
1. NBSZ should have modern equipment	[1]	[2]	[3]	[4]	[5]	NBSZ have modern equipment	[1]	[2]	[3]	[4]	[5]
2. The physical facilities of NBSZ (e.g. donor couch, computers, lights) should be visually appealing.	[1]	[2]	[3]	[4]	[5]	The physical facilities of NBSZ (e.g. donor couch, computers, lights) are visually appealing.	[1]	[2]	[3]	[4]	[5]
3. NBSZ employees should be well dressed and appear neat	[1]	[2]	[3]	[4]	[5]	NBSZ employees are well dressed and appear neat	[1]	[2]	[3]	[4]	[5]
4. Materials used (e.g. pamphlets, forms, stickers, labels, utensils) should be visually appealing	[1]	[2]	[3]	[4]	[5]	Materials used (e.g. pamphlets, forms, stickers, labels, utensils) are visually appealing	[1]	[2]	[3]	[4]	[5]
5. When NBSZ employees promise to do something, they should do so in the promised time	[1]	[2]	[3]	[4]	[5]	When NBSZ employees promise to do something, they do so in the promised time	[1]	[2]	[3]	[4]	[5]
6. When a donor has a problem, NBSZ employees should show a sincere interest in solving it	[1]	[2]	[3]	[4]	[5]	When a donor has a problem, NBSZ employees show a sincere interest in solving it	[1]	[2]	[3]	[4]	[5]

7. NBSZ should perform service right the first time	[1]	[2]	[3]	[4]	[5]	NBSZ perform service right the first time	[1]	[2]	[3]	[4]	[5]
8. NBSZ should provide service at the time promised to do so	[1]	[2]	[3]	[4]	[5]	NBSZ provides service at the time promised to do so	[1]	[2]	[3]	[4]	[5]
9. NBSZ should keep accurate records	[1]	[2]	[3]	[4]	[5]	NBSZ keeps accurate records	[1]	[2]	[3]	[4]	[5]
10. NBSZ employees should tell donors exactly when services will be performed	[1]	[2]	[3]	[4]	[5]	NBSZ employees tell donors exactly when services will be performed	[1]	[2]	[3]	[4]	[5]
11. NBSZ employees should give prompt services to donors	[1]	[2]	[3]	[4]	[5]	NBSZ employees give prompt services to donors	[1]	[2]	[3]	[4]	[5]
12. NBSZ employees should always be willing to help donors	[1]	[2]	[3]	[4]	[5]	NBSZ employees are always willing to help donors	[1]	[2]	[3]	[4]	[5]
13. NBSZ employees should never be too busy to respond to donors' requests	[1]	[2]	[3]	[4]	[5]	NBSZ employees are never too busy to respond to donors' requests	[1]	[2]	[3]	[4]	[5]
14. The behaviour of NBSZ employees should instil confidence in customers	[1]	[2]	[3]	[4]	[5]	The behaviour of NBSZ employees instil confidence in customers	[1]	[2]	[3]	[4]	[5]
15. Donors should feel safe when transacting with NBSZ employees	[1]	[2]	[3]	[4]	[5]	Donors feel safe when transacting with NBSZ employees	[1]	[2]	[3]	[4]	[5]
16. NBSZ employees should be consistently courteous	[1]	[2]	[3]	[4]	[5]	NBSZ employees are consistently courteous	[1]	[2]	[3]	[4]	[5]

17. NBSZ employees should have the knowledge to answer donors' questions	[1]	[2]	[3]	[4]	[5]	NBSZ employees have the knowledge to answer donors' questions	[1]	[2]	[3]	[4]	[5]
18. NBSZ should give donors individual attention	[1]	[2]	[3]	[4]	[5]	NBSZ give donors individual attention	[1]	[2]	[3]	[4]	[5]
19. NBSZ operating hours should be convenient to all their donors	[1]	[2]	[3]	[4]	[5]	NBSZ operating hours are convenient to all their donors	[1]	[2]	[3]	[4]	[5]
20. NBSZ employees give donors personal attention	[1]	[2]	[3]	[4]	[5]	NBSZ employees give donors personal attention	[1]	[2]	[3]	[4]	[5]
21. NBSZ should have donor's interests at heart	[1]	[2]	[3]	[4]	[5]	NBSZ have donor's interests at heart	[1]	[2]	[3]	[4]	[5]
22. NBSZ employees should understand the specific needs of their donors	[1]	[2]	[3]	[4]	[5]	NBSZ employees understand the specific needs of their donors	[1]	[2]	[3]	[4]	[5]

Section C: Open ended questions

1. What would you want changed to improve the quality of service you get from NBSZ?

.....

2. How easy is it for you to communicate any issues you want improved to NBSZ?

.....

.....Any other comment about the quality of service you get at NBSZ?

.....

Thank you very much for your time!