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# Parents' Expectations and Satisfaction Regarding the Choice of Treatment for Anemia in Children: Blood Transfusion Versus Herbal Remedies: a Study Conducted In Kisangani, Democratic Republic Of The Congo.

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## Abstract

Anemia is a major public health problem, affecting approximately two billion people worldwide, particularly children, pregnant women, and the elderly, especially in developing countries. Blood transfusion is the standard of care for severe cases, but access to it remains limited. Medicinal plants, deeply rooted in local traditions, appear to offer an alternative, despite the lack of scientific standardization.

This qualitative, descriptive phenomenological study was conducted in Kisangani (DRC) between April 2024 and June 2025 with seven parents of children with anemia, selected according to specific criteria. Data were collected through unstructured interviews. The participants were all women, aged 33 to 62, with the majority in the 39–49 age group. Thematic saturation was reached by the seventh interview.

The parents interviewed unanimously affirmed that their children's health had improved thanks to blood transfusions or medicinal plants. The level of satisfaction expressed was high, despite constraints related to accessibility (cost, distance, and product storage). The availability of local plants and hospital services was highlighted.

The results show overall acceptance of the treatments' effectiveness, reflecting both cultural perceptions and practical experiences. Parents recommend that other families trust treatments for anemia and follow therapeutic guidelines. This study highlights the need for a complementary approach combining modern and traditional medicine to improve the management of childhood anemia.

**Keywords:** Anemia treatment, Blood transfusion, Medicinal plants, Traditional medicine, Modern medicine, Treatment choice

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## 1. Introduction

The term "anemia" refers to a decrease in one or more blood components, most commonly red blood cells. More specifically, anemia is characterized by a decrease in the amount of hemoglobin contained in a given volume of blood, compared to age-specific normal values (WHO, 2010).

It is estimated that anemia affects approximately 2 billion people worldwide, with a prevalence of 24.8% (McLean et al., 2019), 9 out of 10 of whom live in developing countries (UNICEF, 2018). The most vulnerable populations are infants, children during periods of rapid growth, older adults, and pregnant women.

Sub-Saharan Africa remains the most affected region, with a prevalence as high as 62.3%. In developing countries, the leading cause of anemia in infants is an inadequate diet, both in terms of quantity and quality. Among the causes of anemia, it has been estimated that 75% of cases are attributable to iron deficiency (Diaby, 2021).

Blood transfusion plays a vital role in saving lives and improving patient health. However, many people in need of a transfusion do not have timely access to safe blood. In every country, a sufficient supply of safe blood should be a

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priority and fully integrated into national health care policy and infrastructure (Ramirez, 2018).

In the Democratic Republic of the Congo, large quantities of blood are transfused daily. In Kisangani, the number of transfusions performed in 2012 was estimated at 33,213, or approximately 90 transfusions per day. However, this figure appears to be an underestimate, since in addition to general hospitals and referral health centers—which are the only facilities officially authorized to perform transfusions—many non-integrated health centers also perform this procedure (Ministry of Health-DRC, 2012).

Currently, in the DRC, the number of transfusions is estimated at approximately 73,000 per year, or an average of 200 transfusions per day and 8 per hour. In Katanga Province, this figure stands at 3,000 transfusions per month. It should be noted that this estimate covers only about 40% of the provincial territory with transfusion safety coverage, including the Kamina General Hospital (Kazadi et al., 2018).

In Tshopo Province, 15 children died of anemia in Isangi within a 10-day period. In total, 250 cases of anemia were recorded among children under five in the Tshopo-Lomami health district during this period, resulting in 15 deaths. The chief physician at the Isangi General Hospital, Cyprien Lusiya, attributed this situation to the resurgence of measles cases in the region (Amuzati, 2022).

In Kisangani, a study conducted in the Mangobo Health Zone identified various manifestations associated with non-immune transfusion reactions in the pediatric population: 22% of cases presented with hemoglobinuria, 17% with hypocalcemia, 14.5% with hypothermia, and 10% with iron overload. Among the serious complications, acute hemolytic reaction due to ABO incompatibility accounted for 67% of deaths (Sankole, 2020).

In our modern societies, healthcare professionals are no longer systematically trained in herbal medicine, and many forget that medicinal plants are the foundation of modern pharmacology. In fact, 40% of the medications currently in use are derived from plant-based substances (Valnet J., 2001).

This study fills a scientific gap in the DRC, particularly in Kisangani, where little research has been conducted on severe anemia and parental perceptions regarding treatments. It provides a local context for families' expectations and satisfaction with the available care. By analyzing the participants' statements, it highlights the simultaneous use of modern treatments, such as blood transfusions, and traditional practices, such as medicinal plants. The study reveals perceived effectiveness, encountered barriers, and coping strategies, thereby enriching the literature and guiding health policies.

Parents' choices regarding the treatment of anemia in children—whether through blood transfusions or medicinal plants—are based on multiple factors, including their medical knowledge, cultural beliefs, expectations, and access to health services. These factors influence not only their decision but also their level of satisfaction with the chosen treatment.

Given the many questions raised, the research problem of this study is structured around the following questions:

1. What are parents' expectations regarding blood transfusions and herbal remedies in the treatment of anemia in children?
2. What is the level of parental satisfaction with the results achieved through blood transfusions and medicinal plants in the management of childhood anemia?

### 1.1 General Objective

The general objective of this study is to analyze parents' expectations and level of satisfaction regarding their therapeutic preference between blood transfusions and the use of medicinal plants in the treatment of anemia in children, in order to better understand their perceptions, motivations, and decision-making factors, with a view to improving the management of childhood anemia and guiding the adoption of appropriate, effective, and family-accepted treatment strategies

### 1.2 Specific Objectives

In undertaking this study, we set the following specific objectives:

1. to identify parents' expectations regarding blood transfusions and the use of medicinal plants in the treatment of anemia in children.
2. To assess parents' level of satisfaction with the results obtained through blood transfusions and medicinal plants in the management of childhood anemia.

## 2. Materials and Methods

### 2.1 Study Setting

The city of Kisangani is the site of this research; it is located in the Democratic Republic of the Congo, on the banks of the Congo River, downstream from the Wagenia Falls, formerly known as Stanley Falls. It is the capital of Tshopo Province and was established by Ordinance No. 12/35 of September 6, 1958.

### 2.2 Methods

For this study, we adopted a descriptive phenomenological qualitative approach aimed at describing parents' expectations and level of satisfaction regarding the choice of treatment for anemia in children, comparing blood transfusions with herbal remedies.

The methodological approach adopted is descriptive. Data were collected once from the target population. Data collection was conducted through semi-structured

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interviews, guided by an interview framework and recorded using a voice recorder to ensure accuracy and reliability. The analysis consisted of reading the descriptions, extracting meanings, grouping them into themes, and then returning to the participants for validation.

## 2.3 Population and Study Sample

### 2.3.1 Study Population

In our case, the study population consists of mothers living in the city of Kisangani, thus constituting a finite population. During the period of our study, from April 15, 2024, to June 30, 2025,

### 2.3.2 Study Sample

For this study, we adopted a non-probability sampling design, in which not every member of the target population has an equal probability of being selected for the sample.

The study was conducted in the city of Kisangani (DRC) with these seven parents, during the period from April 15, 2024, to June 30, 2025, who were selected based on specific criteria. A descriptive phenomenological qualitative approach was used to collect data through unstructured interviews. The most represented age group was 39 to 49 years old. The oldest participant was 62, while the youngest was 33. All participants were female. Saturation was reached after the seventh interview, as no new themes emerged.

Participants were recruited using convenience sampling, that is, based on their availability and accessibility at the time of the study. This choice was driven by the qualitative and exploratory nature of the research, which prioritizes the depth of the participants' accounts over statistical representativeness.

Recruitment took place within the community of mothers residing in Kisangani, identified through local networks (personal contacts, peer recommendations, community leaders). This approach ensured that the participants were directly affected by the topic under study (management of childhood anemia).

A relationship of trust was established from the outset. The interviewer took care to explain the study's objectives, the terms of participation, and confidentiality guarantees. The semi-structured interviews were conducted in an atmosphere of respect and active listening, encouraging the participants to express themselves freely and authentically.

To ensure the rigor and credibility of the results, the recruitment and data collection processes were clearly documented. Participants were informed of their role, the purpose of the study, and their right to withdraw at any time. Consulting with the participants to validate the identified themes further enhanced the transparency and reliability of the data.

Participants were selected based on well-defined criteria:

**Inclusion Criteria**

- Being a parent of a child under five years of age who had anemia;
- Having received treatment for anemia within the past three months, whether through blood transfusion or herbal remedies;
- Be present at the time of the survey;
- Have given informed consent to participate in the study.

**Exclusion Criteria**

- Being a parent of a child over five years of age who has had anemia;
- Not having received any of the targeted treatments (blood transfusion or herbal remedies) within the last three months;
- Administered treatment beyond this three-month period;
- Be absent at the time of the survey;
- Having refused to participate in the study.

## 2.4 Data Collection Method

### 2.4.1 Data Collection Method

For this study, we opted for a descriptive phenomenological qualitative research method**,** given its suitability for understanding realities based on subjective experiences. This methodological choice allows us to capture the meaning that parents attribute to their experiences related to the treatment of anemia in their children.

The objective of this approach is to conduct an in-depth analysis of the significance of parental perceptions**,** as expressed through their accounts of daily life. This approach fosters a nuanced and contextualized understanding of individual and collective representations related to treatment choices.

### 2.4.2 Data Collection Method

Data were collected through individual, semi-structured, face-to-face interviews. This data collection strategy was chosen for its ability to encourage free and spontaneous expression among participants, while maintaining a certain degree of structure through the interview guide. The interviews lasted between 30 and 45 minutes each and took place in the city of Kisangani. The data collection period ran from April 15, 2024, to June 30, 2025. The languages used during the interviews were primarily Lingala and Swahili, depending on each parent's language preference. This method allowed us to explore in depth parents' perceptions regarding treatment options for childhood anemia, comparing the use of blood transfusions with that of medicinal plants. It proved particularly effective in capturing the subjective nature of the participants' responses.

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### 2.4.3 Data Collection Tools

To ensure the effective collection and storage of the data needed for analysis, we used two main tools: the interview guide and a voice recorder.

To facilitate data collection from respondents who did not speak French, the interview guide was initially drafted in French and then translated into Lingala and Swahili.

## 2.5 Data Analysis Plan

Data analysis was conducted progressively, in parallel with data collection, in accordance with the theoretical sampling procedure.

Initially, a cursory review of the interviews was conducted to identify the main points and emerging themes. Faithfully reproducing the participants' language means preserving their words, expressions, and turns of phrase without rephrasing or "correcting" them.

This analysis was part of a systematic process of phenomenological reduction, aimed at highlighting the implicit meanings in the descriptions provided by the respondents. Based on the main themes, we identified subthemes and then categories, illustrated by verbatim quotes. After data collection in the field, the data were manually analyzed, taking into account the variables under study. This approach led to a categorical analysis, ensuring a rigorous classification of the results.

The interviews were transcribed in full by the principal investigator immediately after each session to ensure the accuracy of the participants' statements. A systematic verification was performed by cross-checking the audio recordings against the transcripts. Data anonymization was ensured by assigning codes to the participants (R1, R2, …, R7), thereby safeguarding their confidentiality and preventing any direct identification.

The interview guide was not pilot-tested. This methodological limitation is acknowledged and represents an area for improvement in future research, with the aim of refining the relevance and clarity of the questions prior to actual data collection.

R1: R2……respondents 1; 2……

Example number 49 is the respondent's age

The final letter indicates educational level: S for high school, L for bachelor's degree

## 2.6 Data Analysis

The analysis followed the standard steps of descriptive phenomenology:

1. Careful and repeated reading of the transcripts.
2. Extraction of meaningful units of meaning.
3. Grouping these units into themes.
4. Feedback to participants for validation (member checking).
5. Interpretation of the themes in relation to the sociocultural context.

### 2.6.1 Analysis Tools

The analysis was conducted manually, without the use of specialized software such as NVivo or ATLAS.ti. This approach allowed for direct immersion in the data but presents limitations in terms of traceability and systematization.

Coding was performed by the principal investigator. No double coding or cross-checking between evaluators was conducted, which limits the robustness of the results.

The credibility of the results was strengthened through member checking. However, no data triangulation was performed.

The analysis was conducted by a researcher trained in qualitative methodology, with prior experience in conducting and interpreting semi-structured interviews.

## 2.7 Ethical Considerations

In accordance with ethical principles, the approach taken involved obtaining the free and informed consent of the study participants.

Although children were the indirect beneficiaries of the study, no data was collected directly from them. Procedures were designed to protect their anonymity and prevent any exposure.

Audio recordings were stored on a secure, password-protected device. The retention period was set at two years, after which the files will be destroyed. Anonymized transcripts were the only material used for analysis.

No financial or material compensation was offered to the participants. This lack of compensation was clearly explained during the consent process to avoid any influence on their decision to participate.

## 3. Results

This section presents the empirical data collected from parents of children with anemia residing in the city of Kisangani. The sample consists of seven participants, who were interviewed about their expectations and level of satisfaction regarding treatment options for pediatric anemia. The interviews allowed for a comparison of two main approaches: blood transfusion, perceived as a biomedical solution, and the use of medicinal plants, valued for its accessibility and cultural roots.

## 3.1 Presentation of the identifying characteristics of the study participants

Considering the sociodemographic characteristics of the parents , we present the variables as follows: . The most represented age group is 39 to 49 years old. The oldest participant was 62 years old, while the youngest was 33. Furthermore, the vast majority of participants were married (4 out of 7). Regarding occupational status, 6 participants

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worked in the public sector, while 3 resided in the municipality of Makiso.

## 3.2 Comparison of Variables with the Study's Objectives

Our research focuses on the central theme: "Parents' expectations and satisfaction regarding the choice of treatment for anemia in children: blood transfusion versus medicinal plants." With this in mind, we identified two subtopics, in line with the objectives set for this study

The thematic analysis of the central theme mentioned above revealed two subthemes, namely:

**Subtheme 1:** Parents' expectations regarding the choice of treatment for anemia in children between blood transfusion and herbal remedies

**Subtheme 2:** Parents' satisfaction with the choice of treatment for anemia in children: blood transfusion versus medicinal plants

Considering the subthemes identified above**,** we extracted and analyzed a set of significant verbatim quotes collected during the interviews. These representative excerpts form the foundation from which the analytical categories stucturing this study emerged.

**Subtheme 1:** Parents' expectations regarding the choice of treatment for anemia in children between blood transfusion and herbal remedies

Category 1: Improvement in the health of children with anemia

Category 2: Acceptance of the expected outcome of anemia treatment

Category 3: Accessibility of herbal remedies for anemia.

**Subtheme 2:** Parent satisfaction with the choice of treatment for anemia in children: blood transfusion versus herbal remedies

Category 1: Satisfaction

Category 2: Challenges Encountered

Category 3: Suggestions.

After identifying the different categories that emerged from each subtheme, we present the results in the various boxes on the following pages.

In this subtheme, which focuses on parents' expectations regarding the treatment of anemia with medicinal plants, we present respondents' comments on improving the health of children with anemia, their acceptance of any outcome following traditional treatment, and the accessibilit

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**Box 1**

*Parents' Expectations Regarding the Treatment of Anemia with Herbal Remedies*

| Subtopics | Categories | Verbatim quote |
|---|---|---|
| Parents' Expectations Regarding the Treatment of Anemia with Herbal Remedies | Improving Children's Health | "… I had no reason to doubt it. Using the traditional herbal treatment, I always noticed that my child's health was improving slowly but surely…" R160L |
| | | "… My experience with these remedies went back three years… At the hospital, the doctor suggested we buy blood, and the outcome was better after the transfusion. …" R249S |
| | | "… For me, this treatment was a lifesaver. My child recovered, and that brought me deep relief…" R360G |
| | | "… These plants were inexpensive and easy to find, which made the treatment accessible and risk-free…" R440S |
| | | "… The benefits of these treatments went far beyond simply being a medical alternative…" R562P |
| | | "… These fruits have brought us many benefits…" R642L |
| | | "… We had been told that treatment with traditional remedies was effective… but when I tried them, the remedies didn't work…" R739S |
| Acceptance of the expected outcome of anemia treatment | Acceptance of the Results | "… Regardless of the outcome of the anemia treatment, my decision remained the same. To me, a person's life was a gift from God…" R160L |
| | | "… Adults and children … began to notice a change as early as the first night of treatment …" R249S |
| | | "… A child's low blood level was often due to an underlying cause…" R360G |
| | | "… No matter what might happen as a result of the treatment for anemia, I knew for certain that traditional medicine always produced good results…" R440S |
| | | "… We all know that life and death are two realities that transcend human intellectual capacity…" R562P |
| | | "… We'd been told that traditional remedies helped with anemia… but I was also afraid that a blood transfusion might transmit other diseases to him…" R642L |
| | | "… Blood transfusions were essential to human life… The real solution was to transfuse blood to immediately save the person in danger…" R739L |
| Access to Anemia Treatments | Availability of Medicinal Plants and Services | "… Access to medicinal plants has never been a problem for me and my family…" R169L |
| | | "… It was a noble act… because blood transfusions carried the risk of transmitting other diseases such as HIV, hepatitis…" R249S |
| | | "…As for the availability of medicinal plants, there were no problems… except during the dry season…" R440S |
| | | "…As for where we got our medicinal plants, we found them near our homes…" R642L |
| | | "… The seizures had stopped; the child's skin was no longer so pale… I was very happy to see my child's condition improve after an expensive blood transfusion…" R739L |

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Analysis of this excerpt reveals that all study participants firmly asserted that the improvement in their anemic child's health, following the use of medicinal plants or a blood transfusion, was evident and left no room for doubt on their part.

Regarding acceptance of therapeutic outcomes related to the management of severe anemia, the collected statements indicate overall parental agreement regarding the effectiveness of the administered treatment, regardless of its type.

Finally, regarding access to care, the responses reveal some diversity: some parents mention the availability of medicinal plants near their homes—particularly at markets, in the forest, in fields, or in gardens—while others mention the possibility of accessing transfusion services directly at the hospital or through the blood bank.

When considering parents' satisfaction with the results obtained in the treatment of anemia—whether through herbal remedies or blood transfusions—it should be noted that the respondents' comments fell into three categories: satisfaction with the treatment, difficulties encountered during its administration, and suggestions regarding the treatment.

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**Box 2**

*Parents' satisfaction with the results obtained in treating anemia, whether through medicinal plants or through blood transfusion*

| Subtopics | Categories | Verbatim Quotes |
|---|---|---|
| Parental satisfaction with the results of anemia treatment using herbal remedies or blood transfusions | Satisfaction with the treatment of anemia | "… In my child's case, satisfaction was at its peak, because every time an episode of anemia occurred, the traditional treatment produced good results…" R160L |
| | | "… We were satisfied with the care received at the hospital… The blood transfusion had significantly improved his condition. …" R249S |
| | | "… We could no longer stay at home relying on home remedies; we had to go to the hospital for proper treatment…" R360G |
| | | "… Since my child had recovered, I felt very satisfied with the traditional herbal treatment…" R440S |
| | | "… I was waiting for the child to recover. Just going to the hospital gave me hope…" R562P |
| | | "… I've always been happy to see my child regain his health…" R642L |
| | | "… We believed that blood contained various elements and that a transfusion could transmit microorganisms…" R739L |
| Challenges Encountered in Treating Anemia | Difficulties related to dosing and access | "… The main difficulty was estimating the amount of medication to give the child…" R160L |
| | | "… Every time I met parents who refused a blood transfusion…" R249S |
| | | "… A major obstacle was access to the necessary plants…" R360G |
| | | "… We had a problem with storing the solutions…" R440S |
| | | "… We made an effort to help parents understand the necessity of blood transfusions…" R562P |
| | | "… We did not allow any indigenous treatments in the hospital…" R642L |
| | | "… We also faced difficulties with doctors and nurses…" R739L |
| Suggestions for the Treatment of Anemia | Advice and Recommendations | "… When we used the traditional treatment for anemia, we expected the child to recover…" R160L |
| | | "… The only advice I could give to other parents was this: if your child shows signs of anemia, you must take them to the hospital…" R249S |
| | | "… The advice we gave to parents was clear: if a child had severe anemia, they should be taken to the hospital immediately…" R360G |
| | | "… We suggested that researchers promote traditional medicine by determining precise dosages and methods of preservation…" R440S |
| | | "… I have always advised taking children to the hospital…" R562P |
| | | "… I proposed that traditional medicine be valued on the same footing as other forms of medicine…" R642L |
| | | "… I have always insisted that the child be taken to the hospital to receive the necessary care…" R739L |

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As can be seen in this box, nearly all respondents were satisfied with the treatment of anemia, whether through herbal remedies or blood transfusions. Every treatment involves challenges, which is why respondents mentioned various obstacles, such as the distance they had to travel to obtain the products and the constraints related to their storage. Finally, they advised other parents to trust the treatment for anemia and to follow the required steps in preparing and administering the solutions, as well as the precise instructions for transfusion.

## 4. Discussion

This chapter allows us to discuss the results of our study conducted in the city of Kisangani, which focused on parents' perceptions regarding the choice of treatment for anemia in children—between blood transfusion and the use of medicinal plants.

### 4.1 Parents' Expectations Regarding the Treatment of Anemia with Medicinal Plants

Given the improvement in the health of children with severe anemia, all respondents considered the results to be positive. One respondent put it this way:

"… I had no reason to doubt it. While using the traditional herbal treatment, I always noticed that my child's health was improving slowly but steadily. He could go several months without getting sick. My only hope was that my child's hemoglobin level would increase by the end of the traditional treatment. …" R160L

"… For me, this treatment was a lifesaver. My child recovered, and that brought me profound relief. As a woman who had lost her husband, I knew that the death of my child would have been an unbearable ordeal. Fortunately, the transfusion worked quickly. …" R360G

The literature confirms this ambivalence. Azagoh-Kouadio et al. (2020) and the WHO (2011) note that blood transfusions, while effective, raise concerns related to cost, the risk of disease transmission, and accessibility constraints in sub-Saharan Africa. Our results align with these observations, as several parents expressed these same concerns.

Furthermore, Ouhaddou et al. (2016) and Zubiria (2022) emphasize the central role of medicinal plants in rural communities, which are passed down through generations and perceived as natural and safe. Our data corroborate this trend but also reveal internal contradictions: some parents report that the plants are tangibly effective, while others consider these remedies insufficient and prefer to seek care at the hospital

Analysis of the testimonies collected shows that parents express contrasting expectations regarding treatments for pediatric anemia. Some value medicinal plants for their accessibility, low cost, and cultural significance, highlighting a gradual but satisfactory improvement in their children's health. Others, however, highlight blood transfusions as a life-saving, rapid, and effective solution, especially in severe cases. These results reflect a shared preference rather than a clear consensus: parents oscillate between trust in traditional knowledge and recognition of modern medicine.

Finally, the credibility of these accounts must be evaluated with caution. The narratives are sometimes influenced by social desirability bias (the tendency to valorize local practices), by post-event narratives (reinterpretation of experiences after recovery or avoided death), or by religious beliefs that lead some parents to accept any outcome as the will of God. These factors show that parental expectations are not limited to a medical- al framework but are part of a broader context that combines cultural perceptions, economic constraints, and spiritual beliefs.

Regarding acceptance of the outcomes of treatment for anemia, respondents indicated that any outcome was accepted without distinction, whether it was recovery or, unfortunately, death.

"… Regardless of the outcome of the treatment for anemia, my choice remained the same. For me, a person's life was a gift from God. If the child died of anemia following this herbal treatment, I accepted it, because I believed in the resurrection. But when the child recovered, I glorified the Good Lord for His mercy. …" R160L

"… Whatever might happen following treatment for anemia, I knew with certainty that traditional medicine based on medicinal plants always produced good results, often satisfactory ones. However, I had to accept whatever outcome might result. …" R440S

These findings are consistent with the observations of several studies on fatalism and spirituality in the experience of illness in Africa. Rakotoarisoa et al. (2018) and Azagoh-Kouadio et al. (2020) show that illness is often perceived as a trial part of divine destiny, leading families to accept therapeutic outcomes—even unfavorable ones—with a certain sense of serenity.

Similarly, Gogoi et al. (2021) emphasize that trust in traditional practices is rooted in intergenerational transmission and cultural legitimacy, reinforcing the idea that outcomes, whatever they may be, must be accepted without question.

This acceptance, however, has a direct impact on medical decision-making.

On the one hand, it can delay the use of biomedical care, as parents prefer to try traditional remedies first. On the other hand, it can limit challenges to treatment failures, as families consider that ultimate responsibility lies with God or fate. This stance, while spiritually comforting, poses challenges for health care systems: it underscores the need for tailored therapeutic education, intercultural dialogue, and the

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thoughtful integration of traditional practices into care pathways, in order to reconcile beliefs, parental expectations, and medical efficacy.

The testimonies collected show that acceptance of the outcomes of anemia treatment—whether recovery or death—is a central aspect of the parental experience. This acceptance takes on several meanings: it can be interpreted as resignation in the face of limited available resources, as an expression of religious beliefs (since life and death are perceived as matters of divine will), or as trust in tradition and community knowledge. Thus, parents do not base their satisfaction solely on recovery, but view it within a broader framework in which spirituality and culture play a decisive role.

Regarding access to treatments for anemia, some respondents indicated that they could find them near their homes, in fields and gardens, in the forest, even at markets, through volunteers, or at the blood bank:

"… Access to medicinal plants was never a problem for me and my family. I didn't have to travel long distances to find them. I found these medicinal plants behind my house, at the market, and sometimes in the forest in Lubunga, on the right bank, and on the outskirts of Kisangani, often on my way to Bangboka Airport…" R169 L

"… As for where we got the medicinal plants, we found them near our homes. Often, they were cultivated plants, and others were wild plants that could be found all around the house. I often paid money to the person treating my child so they could travel to where these plants were found..." R642L

A quantitative comparison of the two options reveals a stark contrast: medicinal plants are locally available, sometimes for less than 1,000 Congolese francs, whereas a blood transfusion entails significant expenses, including the cost of the blood bag and consultation fees. In a context where household incomes are low and irregular, this cost difference strongly influences treatment choices.

The socioeconomic impact is therefore significant: families prefer traditional remedies because they are readily available and inexpensive, but turn to blood transfusions as a last resort when the child's condition is deemed critical. This dynamic illustrates a tension between modern medicine—perceived as effective but costly and difficult to access—and traditional practices, which are considered affordable and culturally integrated.

Thus, access to treatments for anemia in Kisangani is not merely a medical issue but is embedded in a socioeconomic and cultural context. Financial constraints, the limited availability of blood banks, and religious or community beliefs influence parental decisions. These findings call for better integration of traditional knowledge into health systems, as well as for strengthening local blood transfusion infrastructure, in order to reduce inequalities in access and ensure more equitable care for children with anemia.

In this study, we observed that nearly all respondents were satisfied with the treatment of anemia. We noted the following comments:

"…In my child's case, satisfaction was complete, because every time an anemia episode occurred, the traditional treatment produced good results. I was always satisfied, because every time my child suffered from anemia, he did not need a blood transfusion, and this treatment helped me not to lose hope…" R160L

"…We were satisfied with the care received at the hospital, because what we had tried at home had failed. We went there because our home remedies hadn't worked. The hospital care for the child was satisfactory, because it was thanks to that care that he regained his health. If we had stayed at home, he might have died in our arms. The blood transfusion had radically improved his condition. …" R249S

According to Hillman et al. (2021), blood transfusion remains the standard of care for severe forms of anemia, due to its immediate effect on tissue oxygenation and the rapid restoration of hemoglobin levels. However, its use is constrained by several factors, including high cost and limited availability in certain regions (WHO, 2017; WHO, 2024), medical risks such as immune reactions or the transmission of infections despite screening, as well as cultural and religious barriers, particularly among Jehovah's Witnesses (UNICEF & WHO, 2005).

Conversely, medicinal plants appear to be a credible alternative, particularly for moderate forms of anemia. They are culturally valued, accessible, and inexpensive. Their effectiveness stems from their high nutrient content (iron, vitamins, proteins), as highlighted by Leary (2023) and Emmanuella (2020). Research by Carole (2020) and Giess (2015) highlights the effectiveness of chlorophyll in improving blood quality and stimulating hemoglobin production. However, their effects are gradual and depend on prolonged use. Furthermore, their use raises methodological limitations: lack of standardized dosages, variability in preparations, and a lack of rigorous scientific validation (Oniyangi, 2004; Mavudila Kisal et al., 2023; Kassebaum et al., 2014).

The satisfaction expressed by parents primarily reflects a subjective perception related to the child's survival and recovery, rather than a clinical assessment based on objective indicators. Indeed, the absence of biological data (hemoglobin levels, frequency of episodes, clinical progression) limits the scientific significance of these statements

Thus, the parental satisfaction observed in this study reflects cultural and emotional acceptance rather than evidence of therapeutic efficacy. The ideal would be a reasoned

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complementarity between modern medicine and traditional knowledge, enabling clinical needs to be met while respecting sociocultural contexts.

### 4.2 Analysis of Methodological Limitations

The interpretation of this study's results must be qualified due to several methodological limitations:

#### 4.2.1 Reported satisfaction differs from actual efficacy

Parents' statements primarily reflect subjective feelings (relief, confidence, hope) rather than an objective measure of therapeutic efficacy. The satisfaction expressed cannot therefore be directly equated with clinical evidence of recovery.

#### 4.2.2 Lack of clinical indicators

The study does not provide biological or medical data to corroborate the reported perceptions. No monitoring of hemoglobin (Hb) levels, seizure frequency, or mortality was included, which limits the scientific validity of the conclusions.

#### 4.2.3 Areas of Subjectivity

The testimonies collected are based on individual perceptions and cultural beliefs. While these elements are important for understanding families' adherence to treatments, they do not constitute medical evidence. They reflect social and emotional perceptions rather than measurable clinical outcomes.

### 4.3 Challenges Encountered

Analysis of the collected data highlights several challenges related to anemia treatment methods, whether involving blood transfusions or the use of medicinal plants.

#### 4.3.1 Risks Associated with Medicinal Plants

Although culturally valued and accessible, medicinal plants have significant limitations:

- **Overdose:** The lack of standardized dosages exposes children to excessive or insufficient doses, compromising the treatment's efficacy and safety.
- **Toxicity:** Some traditionally used plants may contain substances that are potentially harmful to the liver, kidneys, or digestive system.
- **Interactions:** Combining traditional preparations with modern medications can lead to unpredictable pharmacological interactions, increasing the risk of adverse effects.

These challenges are exacerbated by the lack of scientific validation and the absence of quality control in the preparation and storage of these remedies.

#### 4.3.2 Risks Associated with Blood Transfusion

Blood transfusion, while effective for severe forms of anemia, is not without risks. According to the WHO (2024), the main complications include:

- Immunological reactions: minor or major incompatibilities that may cause febrile or hemolytic reactions.
- Residual infections: Despite screening tests, the risk of transmitting infectious agents (HIV, hepatitis B and C, malaria) remains, particularly in resource-limited countries.
- Logistical constraints: insufficient availability of blood bags, limited hospital infrastructure, and high treatment costs.

#### 4.3.3 Impact of Poverty and Delayed Diagnosis

The challenges faced are also linked to the socioeconomic context:

- Poverty: The cost of transfusions and hospital care is a major barrier for many families, who turn to herbal remedies, which are more affordable.
- Delayed diagnosis: The lack of early screening and medical follow-up leads to the worsening of anemia cases, requiring invasive interventions such as transfusions.
- Increased complications: The absence of rapid diagnosis contributes to the progression to severe forms of the disease, increasing infant mortality and the burden on health care systems.

## 5. Conclusion

The overall objective of this study is to analyze parents' expectations and level of satisfaction regarding their treatment preferences between blood transfusions and the use of medicinal plants in the treatment of anemia in children, in order to better understand their perceptions, motivations, and decision-making factors, with a view to improving the management of childhood anemia and guiding families toward appropriate, effective, and acceptable treatment strategies.

In conducting this study, we set the following specific objectives:

- To identify parents' expectations regarding blood transfusions and the use of medicinal plants in the treatment of anemia in children.
- To assess parents' level of satisfaction with the results obtained through blood transfusions and herbal remedies in the management of childhood anemia.

Methodologically, the study adopted a qualitative approach, allowing for the collection of rich and contextualized data. The study population consisted of parents of children with anemia who were being treated either with blood transfusions in hospitals or with traditional treatments based on medicinal plants. Data collection techniques relied primarily on semi-structured interviews, which encouraged

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respondents to freely express their experiences, perceptions, and advice.

### 5.1 Key Findings

The study identified the following key findings:

**Parents' Expectations:** Above all, families hoped for their child's rapid recovery and survival, seeking a treatment they perceived as effective and safe.

**Satisfaction:** A high level of satisfaction was expressed, both with regard to blood transfusions (immediate effects) and medicinal plants (gradual recovery and culturally integrated treatment).

**Accessibility:** Blood transfusions remain limited by their cost and availability, while medicinal plants are more accessible and less expensive but pose challenges regarding dosage and storage.

**Differences in Treatment Choices:** Some parents prefer blood transfusions for their immediate effectiveness, while others prefer medicinal plants for their accessibility, cultural significance, and lower cost.

### 5.2 Implications for Practice

The results of this study highlight concrete avenues for improving the management of childhood anemia, taking into account families' expectations, socioeconomic constraints, and cultural realities.

#### 5.2.1 For healthcare providers

- **Strengthen communication:** Develop a clear and empathetic dialogue with parents to explain the benefits and risks of different treatments (blood transfusion, herbal medicine).
- **Health education:** organize awareness sessions on the causes of anemia, the importance of early screening, and preventive nutritional measures (a diet rich in iron, vitamins B9, and B12).
- **Cultural support:** recognize traditional practices and guide families toward their supervised use, while emphasizing the limitations and risks associated with overdose or drug interactions.

#### 5.2.2 For health authorities

- **Strengthening blood banks:** improve the availability and safety of blood bags in Kisangani by expanding voluntary blood donation campaigns and modernizing transfusion infrastructure.
- **Affordability:** Establish support mechanisms (subsidies, health insurance) to reduce the cost of transfusions and ensure equitable access.
- **Epidemiological surveillance:** Establish regular monitoring of cases of childhood anemia to guide public policies toward prevention and prompt treatment.

### 5.3 Limitations of the Study

This study has several methodological limitations that must be taken into account when interpreting the results:

- **Sampling:** the study was based on a limited number of participants, selected from a specific context. This limits the representativeness of the results and their generalizability to all parents dealing with childhood anemia.
- **Social desirability bias:** Parents' responses may have been influenced by a desire to present a positive image of their choices or behavior to healthcare providers. This bias reduces the reliability of the testimonies collected.
- **Inability to verify the actual effects of treatments:** The study relied on parents' perceptions and accounts, without systematic medical follow-up. It was therefore not possible to objectively confirm the effectiveness of the treatments (blood transfusions or herbal remedies).
- **Lack of objective clinical data:** no medical indicators, such as hemoglobin levels, seizure frequency, or clinical progression, were included. This omission limits the scientific scope of the results and prevents a direct link from being established between parental satisfaction and an actual improvement in the children's health.

#### 5.3.1 Impact on the Scope of the Results

These methodological limitations reduce the study's external and internal validity. The results should be interpreted as reflecting parents' subjective perceptions and experiences, rather than as a rigorous clinical assessment of treatment efficacy. Nevertheless, they provide valuable insight into social perceptions, expectations, and barriers encountered in the management of childhood anemia, thereby serving as a useful foundation for guiding health policies and future research.

### 5.4 Generalizability

The results of this study, obtained from a small sample of female respondents in Kisangani, primarily reflected local realities regarding the management of childhood anemia. Due to the small sample size of seven respondents and the qualitative nature of the methodology, external validity remains limited. However, these findings can be applied to similar contexts in the Democratic Republic of the Congo and serve as a basis for comparative research in other provinces or African countries facing similar challenges.

### 5.5 Conclusion

Ultimately, this study demonstrates that the management of childhood anemia in Kisangani cannot be limited to a single approach but must be based on a well-considered combination of blood transfusion and herbal medicine, integrated with sociocultural and economic realities, in

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order to ensure therapeutic strategies that are effective, safe, and accepted by families

### 5.6 Recommendations

1. Strengthen clinical research on medicinal plants to scientifically validate their efficacy and safety.
2. Implement community-based strategies to reduce wait times for care and promote early and effective diagnosis.
3. Develop funding policies to alleviate the financial burden of care on families.
4. Promote an integrated approach combining modern medicine and traditional practitioners, in accordance with local realities, to improve the acceptance and effectiveness of treatments.

## Data availability

Data supporting the findings of this study are available from the corresponding author upon reasonable request.

## Competing interests

The authors declared that no competing interests exist.

## Author contributions

**D.O.F**: Conceptualization, Formal Analysis, Project Management, Writing - Original Draft; **O.O.M.C**: Methodology, Data Curation, Writing-Review and Editing; **M.B.B**: Methodology, Data Curation, Writing-Review and Editing; **E.K.M:** Writing-Review and Editing. **K.T.N.N**: Methodology and Writing-Review & Editing. **M.N.C:** Data Curation, writing-review, and editing; **A.L.N**: Methodology, data curation and analysis, supervision, and writing-review & editing, **G.A.B** & **A.M.J.M**: Methodology, data curation and analysis, supervision, and writing-review & editing.

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## Clinical trial number

Not applicable

## Ethics approval and consent to participate

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki, and the research protocol was approved by the Bioethics Committee of ISTM KINSHASA number 0031/CBE/ISTM/KIN/RDC/PMBBL/2023, dated 29/11/2023.

Written consent has been obtained from all participants.

## Consent to participate

All participants provided written consents

## Consent for publication

Not applicable

## Conflict of interest

The authors declare that they have no conflicts of interest of any kind.

## List of abbreviations

CBE – Comité de Bioéthique (Bioethics Committee)
DRC – Democratic Republic of the Congo
ISTM – Institut Supérieur des Techniques Médicales (Higher Institute of Medical Technology)
UNICEF – United Nations Children's Fund
WHO – World Health Organization

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