

A Qualitative Study of Family Caregiver Perspectives on Condition and Therapy Related Factors Influencing Chemotherapy Adherence for Children in Accra, Ghana

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Research Article

Keywords: Adherence, Childhood cancer, Chemotherapy, Family caregiver, Paediatric patient, Therapy-related factors

Posted Date: March 5th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-8620108/v1>

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Additional Declarations: No competing interests reported.

Abstract

Background

Paediatric cancers are rare but remain one of the leading causes of child mortality worldwide. In low-and middle-income countries, non-adherence is widespread and habitually the most common cause of treatment failure which is often based on intrinsic or extrinsic factors linked to poor health outcomes.

Objectives

The study sought to explore family caregivers' perspectives on condition and therapy related factors influencing adherence to chemotherapy for children in Accra, Ghana.

Method

This is an exploratory descriptive study with a qualitative approach. The setting was a teaching hospital in Accra, Ghana. Sixteen family caregivers of children with cancers participated in the study. Semi-structured interviews, using a pre-tested interview guide were used for data collection. Data was analyzed manually using descriptive keywords in transcripts. Rigor techniques included coding, re-coding, peer debriefing and member checking.

Results

The study showed that chemotherapy adherence in children is bolstered by caregivers knowing the type of cancer, seeing the efficacy of the chemotherapy, the counselling of doctors and nurses, hospital subsidies as well as the attitudes of health staff

Conclusion

This study concludes that appreciating the type of cancer, its description and prognosis, and the decrease in presenting symptoms as well as communicating the efficacy of chemotherapy family care givers enhances pediatric chemotherapy adherence

Introduction

In spite of improvements in cancer therapies, childhood cancers claim so many lives with a huge disproportion of survival rates across the world (World Health Organization, 2018). In a low- and middle-income countries (LMICs) country like Ghana, the challenge is not only centered on whether the treatment is available but also whether the child will complete the treatment in full (Ferrell et al., 2012;

Renner & McGill, 2016). In such areas, non-completion of medication courses and sometimes rejection of chemotherapy even after initial doses is an often overlooked driver of treatment failure; which may be an uphill challenge in the midst of overlapping challenges in clinical care, family dynamics and healthcare system related constraints (Apakpo et al., 2023; Oystacher et al., 2019).

For children undergoing chemotherapy, the decision of the family caregiver is the foundation on which all other clinical decisions are taken. These caregivers mostly parents or people with close family bonds navigate many logistical, emotional and therapy related challenges while making constant decisions that impact on the care continuity of clients (Ho et al., 2023; Nijhof et al., 2020). Understanding the perspective of family care givers on the condition and therapy related factors influencing chemotherapy adherence goes a long way to improving therapy adherence.

Existing literature provides broad themes such as financial restraints and treatment toxicities as influences for non-adherence, however the existing body of literature often lacks contextual depth in a setting like Ghana, often ignoring the condition related factors (Greer et al., 2016; Puts et al., 2013). Recently, an increase in the number of persons adhering to chemotherapy among patients living with paediatric cancers has been seen in hospital records at the Korle Bu Teaching Hospital in Ghana (KBTH Annual Report, 2022). This is interesting given that the recent increase contradicts the trend of high chemotherapy non-adherence within both the Ghanaian and global fronts (Brice et al., 2021; Greer et al., 2016). Nevertheless, the literature is silent on adherence to chemotherapy in the context of Ghana, among paediatric patients. To address this gap, this study qualitatively engaged family care givers to find out the therapy and condition related factors influencing adherence to chemotherapy for children in Accra, Ghana.

Methods

Study Design

This research was exploratory descriptive qualitative study. According to Lewis (2015) and Hegerty et al., (2008), this study's exploratory descriptive design examined the emic reactions of family caregivers of cancer patients receiving treatment in the Paediatric Oncology OPD at the Korle-Bu Teaching Hospital (KBTH).

Study Setting

This section describes the research environment and includes details on where the study was conducted at the Paediatric Oncology OPD of the Korle-Bu Teaching Hospital (KBTH) in Accra, Ghana's capital city. The interviews were conducted in an enclosed area on the unit. The location was chosen since it is one of the main hospitals in Ghana that provides paediatric cancer treatment. On October 9, 1923, Korle Bu Teaching Hospital, Ghana's top tertiary healthcare center, was founded. The third-largest referral facility in Africa, the Korle Bu Teaching Hospital, contains 2,000 beds, 21 clinical and diagnostic departments,

and three Centers of Excellence. Additionally, there are approximately 250 inpatient admissions per year and 1,500 outpatient visits on average. The Oncology Unit, which is part of the Department of Paediatrics and Child Health at the KBTH, has a 30-bed capacity and a separate day care facility where outpatient paediatric patients can go for chemotherapy treatment before returning home. The KBTH's paediatric oncology division is staffed by skilled oncologists and a group of capable and committed nurses. Additionally, the KBTH boasts the most advanced and well-equipped radiation, laboratory, diagnostic, and support group facilities for kids with cancer. (KBTH, 2020)

Study Population and Sampling

The target population for this study was family caregivers of patients under the age of 15 receiving chemotherapy for cancers and have been responsible for the care of the patient for at least 10–18 hours each day for at least 3 months. A purposive sampling technique was employed to select study participants. Sixteen participants took part in this study. Data was collected until thematic saturation

Recruitment

Following ethical clearance, the head of the oncology division of the selected tertiary facility gave the researcher directions to potential volunteers based on the inclusion criteria. Before asking for their consent, participants who met the study's inclusion criteria were chosen and given an information sheet to make sure they were completely informed of the study and its goals. Participants were given a brief explanation of the study's objectives and were later given the researcher's contact information. Participants were informed that the study would take place in a week at the paediatric oncology outpatient department (OPD) and had a week to decide to take part in the study.

Interested participants were contacted by phone and invited to a meeting at the paediatric oncology office after a week for a written informed consent to be taken. The interviewees were scheduled for a time and location that worked for them.

Data Collection

In-depth interviews were used to gather data using a pre-tested semi-structured interview guide based on research objectives. Family caregivers participated in one-on-one interviews that were performed face-to-face. Demographic data was gathered, and participants were assigned codes. With the participants' permission, an audio recorder was used to capture the interviews. Additionally, handwritten notes were recorded in a field diary. The interview guide focused on condition and therapy-related factors influencing paediatric chemotherapy adherence from the family caregiver's perspective. The interviews lasted between 50–70 minutes. The interviews were carried out by the first author in the English language (n = 13) and Twi (n = 3)(a common Ghanaian language spoken by most Ghanaians). The interviews in Twi were translated into the English language before data analysis.

Data Analysis

In analyzing the data, the researchers considered the thematic analysis technique (Braun & Clarke, 2006). Data was analyzed manually. It was first organized according to the different respondents and their respective participant numbers, all audio recordings and written field notes as preparation. The interviews were transcribed verbatim, and the researchers (KK, JO, CAAJ, CBAA, MOA, and LL) thoroughly reviewed and became familiar with the data to accurately identify similarities or contrasting information initially. This process of reviewing was also to ensure that the researchers transcribed the recordings accurately. The coding process then began, by highlighting and grouping similar thoughts or words from the data into different categories (Crowe et al., 2015). Once relationships between the categories developed were further analyzed and grouped into major themes, the researchers determined the major themes, and the themes and accompanying subthemes were further reviewed and defined by LAO (an expert), to ensure clarity in the reporting of the final findings. Three (3) main themes and seven (7) subthemes were generated from the data.

Trustworthiness

Rigor was established by using Lincoln and Cuba's (1985) criteria - credibility, transferability, dependability, and confirmability. To ensure credibility, the study guide used for the study was submitted to an Institutional Review Board for approval before its use. Member checking for data accuracy was also ensured. Transferability was confirmed through detailed descriptions of the study setting, methodology, and characteristics of the participants to allow potential readers to decide whether the findings of this research can be applied to different settings or contexts with different respondents. Dependability was by peer debriefing and use of an audit trail. For confirmability, transcribing the responses from the study participants verbatim and code -recoding.

Ethical Considerations

Before participants were selected and data collected, ethical clearance was obtained from the hospital's Institutional Review Board (KBTH-IRB00009/2022). The participants provided verbal and written informed consent, after a couple of days following the provision of an information sheet and explanation of the study. Participation was voluntary and participants were informed that they could withdraw from the study without affecting their children's treatment. The benefits, risks, and discomfort associated with the study were explained to them and they were assured of anonymity, privacy, and confidentiality during and after data collection. Data was managed appropriately and kept safe under lock for hard copies, and double password-protected for soft copies, with accessibility only to researchers.

Results

Demographics Characteristics of Participants

Sixteen participants from age 22 to age 51 were interviewed. They came from different parts of Ghana to seek care for their wards in Accra, the capital city of Ghana. Several participants (10) were aged 30–39, one participant was between the age of 22–30 and five participants were above 40 years. Thirteen participants were females, and three were males. All the participants had had some level of formal education, eleven of the participants had basic education, four participants had secondary education and only one had received tertiary education. On the issue of the relationship to the patient being cared for, all participants stated they were either parents or direct siblings of the patient but were all above the age of 20. Most of the participants (15) were self-employed with only one working in a corporate sector (either formal institution or with government agencies). Below is a detailed demographic data of participants (Table 1).

Table 1
Demographic Data of Participants

Participant Code	Age (sex) Participant	Age (sex) Child/Patient	Educational level	Marital Status	Occupation	Months on chemo (Child)
R1	36 (Female)	7 years (M)	Primary 2	Single	Trader	16
R2	42 (Female)	2 years (-)	SHS	No response	Trader	5
R3	41 (Female)	10 years (-)	Primary 3	Single	Trader	5
R4	39 (Female)	5 years (F)	JHS 3	Married	Food Vendor	13
R5	30 (Male)	7 years (F)	SHS	Cohabiting	Disk Jockey	3
R6	46 (Male)	9 years (M)	MPhil(tertiary)	Married	Teacher	6
R7	32 (Female)	3 years (F)	JHS 3	Married	Trader	13
R8	22 (Female)	4 years (F)	JHS 3	Single	Trader	7
R9	30 (Female)	5 years (M)	SHS	Divorced	Hairdresser	6
R10	50 (Male)	12 years (M)	JHS 3	Married	Farmer	11
R11	31 (Female)	7 years (M)	Primary 6	Married	Food vendor	4
R12	36 (Female)	8 months (M)	JHS 3	Married	Jeweler	5
R13	37 (Female)	4 years (M)	JHS 3	Married	Hairdresser	3
R14	31 (Female)	15 years (M)	Primary 2	Married	Baker	5
R15	45 (Female)	2 years (F)	JHS 3	Married	Trader	4
R16	34 (Female)	5 years (F)	SHS leaver	Divorced	Hairdresser	7

JHS (Junior High School), SHS (Senior High School)

Themes and Subthemes

The analysis presented three main constructs, underpinned by seven comparable explanatory sub-themes in the table below. These constructs are the basis of the analysis in this study. Below is a detailed outline of themes and subthemes as shown in Table 2 (Table 2)

Table 2
Themes and subthemes

THEMES	SUBTHEMES
1. Condition-Related Factors	A. Reduction of Presenting Symptoms b. Type of Cancer
2. Therapy-Related Factors	a. Efficacy of Chemotherapy b. Counselling on Chemotherapy
3. Healthcare System-Related Factors	a. Hospital Support and Subsidies b. Availability of Hostel Facility c. Attitude of Hospital Staff

Theme 1: Condition Related Factors

The first main theme was about condition related factors that may influence the caregivers' adherence to treatment. This was an expression of how the conditions influence the caregivers' motivation to adhere to the therapy. The sub-themes that were generated were a reduction of presenting symptoms and type of cancer.

Reduction of Presenting Symptoms

An emerging subtheme under the condition-related factors was the reduction of presenting symptoms. Participants expressed how despite challenges faced during the process of chemotherapy, observing key improvement in condition inspired them to keep coming for treatment. Here are some of their remarks

"Yeah, when we started the chemo, I noticed her stomach was coming down by right now. It has come back to normal like the way it was at first. And yeah, it inspired me. I had hope for it." (R2)

"For me, if the medicine has helped the symptoms to come down. I believe we should give you enough reason for you to continue. So that's why I'm also still on it" (R16)

Others also stated that the difference after taking chemotherapy was too significant for them to not have stopped taking chemotherapy

"This is because somebody who cannot pass stool suddenly within some time in a week or two suddenly, they were able to make him have a free passage of bowel, it means that it's satisfactory and it makes me feel cancer can go away". (R6)

"When she started taking the chemotherapy that was when I saw the difference or that's when I saw that the symptoms or the fluid at the vagina had reduced to after some couple of the chemotherapy session. I want to finish it." (R8)

Type of Cancer

The previous sub-theme spoke about how reducing symptoms served as a source of motivation for adherence to chemotherapy. In this sub-theme, "Type of Cancer" - most of the participants note how depending on the type of cancer and the level of prognosis, they adhered to chemotherapy. Some participants stated they decided to adhere strictly to chemotherapy after they were told that their children's cancers had a good chance of going into remission with chemotherapy. These were expressed as follows:

"So far for me, I've seen much more positive than negative in her situation. Depending on the type of cancer, I also urge people to go ahead and get their chemotherapy". (R5)

"So, the doctors read the reports, and they told me that there was no more cancer in my baby's system, but the treatment of sarcoma is very difficult. So, I should please comply with them so that they do so that they continue to do another chemotherapy for me" (R7).

"Here lies the case anytime they take it works and then they get well, her case is treatable so I will continue". (R16).

Theme 2: Therapy-Related Factors

This theme focused on the barriers to medication therapy as well as the complexities of the treatment regime which may influence the family caregivers' perception of the treatment and subsequently therapy adherence. The sub-themes generated were the efficacy of chemotherapy and counselling on chemotherapy.

Efficacy of Chemotherapy

This sub-theme focused on the efficacy of chemotherapy and sought to highlight how participants felt about the effectiveness of chemotherapy in producing the desired beneficial effects thereby, influencing treatment adherence. Below are the expressions made:

"To be frank, looking at the medicine, they give to my son, it has helped him that's what I've observed. I've seen that the way he used he used to be is not how he is now. So, I think it has really helped him. It works very well. So, for now, everything is okay". (R9)

"Me too I can see that the medicine is very strong so I believe it will kill the cancer cells and make my son free". (R11)

Many of the participants expressed how they had paid particular attention to the chemotherapy sessions. Stating that they were not just sure of the efficacy but also sure of its curative potential. Here

are some of their words:

"If I hadn't seen that the chemo works, I would have opted for the herbal medicine". (R12)

"When I started with my chemotherapy. I see that everything stopped. So, it's good. It was as if it didn't work, and we would have gone home. I will say that by this time. Like we would have lost her" (R3)

Counselling on Chemotherapy

The previous sub-theme spoke about how participants felt about the effectiveness of chemotherapy in producing the desired beneficial effects thereby, promoting treatment adherence. Another emerging sub-theme motivating chemotherapy adherence was counselling. Counselling at the paediatric oncology unit is usually done before the commencement of chemotherapy. These are a few of the responses from some participants:

"Doctors have made me understand that if you skip the treatment, it disturbs the kid so for me I believe coming regularly will help and if you don't come regularly to I believe we to her it will disturb the kid" (R16)

"The doctor told me all that the medicine does and even how they will mix it for my child. So, I knew what to expect even before it happened. No matter the side effects that the chemo came with I am still encouraged to bring the child for the drug". (R2)

"They counselled me that I shouldn't take her to any herbal or church. She shouldn't take any herbal medicine. Apart from the medicine they will give us, so they said here before they came to tell me it was cancer". (R3)

Other participants were also of the view that being counselled on solely relying on the doctors at the chemo unit even when the patient is ill has promoted their adherence. Their comments were:

"This is because we are ordinary people, we are not doctors or professionals, they are professionals. In fact, I was convinced to do what they said and take him through that medication to help my son to set himself free from this boil or uncertain boil". (R6)

"Oh, initially when we came, they told us that they wouldn't allow us to take any medication in addition to the chemotherapy so that's exactly what we are complying with and then it has really helped a lot. Because it's their field and that's what they've learnt about.". (R16)

Theme 3: Healthcare System-Related Factors

This main theme focused on healthcare system-related factors that influence the caregivers' adherence to treatment. The sub-themes that emerged were hospital support, availability of hostel facilities, improved hospital protocols, and the attitude of hospital staff.

Hospital Support and Subsidies

The first subtheme that emerged was financial support from the hospital as well as care subsidies. Participants expressed how critical and crucial they felt the subsidies were to adherence. Although the participants expressed challenges with the system, they overwhelmingly stated that without these subsidies adherence was going to be problematic. Some participants echoed that view in the following statements:

"Talking about the buying of the medicine, when you are able to come and then you tell them you don't have money for medicine if there is money, they give you to go buy the medicine, but if there is no money they try to explain to you, so you also don't get angry". (R8)

"I think the hospital has a policy which is supporting guardians financially, especially when you have attended severely. Money is made available, but some don't ask. And then for me my case, like this, I didn't ask, and I'm not the type of person that asks for money. but if it's not my wife, who's said we should come and then they said they have some money here to help those who are in need. Like I always struggle to get money before I come" (R5)

Other respondents also took time to express how a financial aid system of some sort had been instituted to aid their treatment. Here are some of their words

"There is a system here but is not specific, but they have a system that supports everyone who doesn't have enough funds (...), they will also top up for you too. And it really helps us to continue our chemotherapy treatment. It is a good system that the hospital has" (R6)

"Yeah, they have a system (for financial support). They say there is this money that like when someone goes into difficult when they see that you've gone inside (used too much money), they support you a little here in Korle bu.". (R2)

Availability of Hostel Facility

The previous sub-theme spoke about how financial support from the hospital and care subsidies influenced treatment adherence. However, the availability of hostel facilities made them so comfortable and promoted their willingness to adhere to the therapy. Participants expressed how continuous travelling may have derailed their desire to undergo treatment and how they were helped immensely by the hostels. Their comments were as follows:

"So, me being with my son in the hostel is okay. I sometimes pay for three-day hostel fee, which a day is 50 cedis (...), when I'm there and then my son spikes temperature or if I see any abnormalities, I'm able to rush in very fast to the hospital. So, I believe, I believe the hostel has also helped a lot. Yes". (R1)

"So, we have been in the hostel here for like a year before going back home. For all this while I've been in the hospital without going home because the lorry fare alone is like 200gh... so it's the hostel that has helped in saving some money". (R8)

"So now I'm here in the hostel, there's nobody to manage my shop and I am not worried at all because I think here is very convenient and easy and people will not see you to be gossiping about you or your child". (R9)

Attitude of Hospital Staff

This subtheme speaks to how the 'attitudes of healthcare professionals' became a driving force to treatment adherence. The expressions are as captured below:

"Anytime I go for the medications, she (referring to the nurse) can just attend to me very fast. So that also really encourages me to continue coming because some of them are open and willing to help". (R15)

"When I say we are coming to the hospital and he gets here, the doctors and the nurses, he plays with them a lot (...). It is only when you are coming to set a line for him that you see him crying or maybe unless he is very sick. But if he's okay, and you bring him here, he will always be playing with the nurses here. So, I'll always come". (R4)

The character and attitudes of some doctors were also viewed as strong motivators. This is what a participant said:

"I always say that if not here in this hospital, that we came that, I wouldn't have known that. Doctors do sometimes play with the kids.... They are friendly and very open to us anytime they try to make the children happy....honestly it is very encouraging." (R11)

"All I can say that the nurses and doctors are all welcoming. And even sometimes when I get home, and I don't understand anything, and I call them, they would explain everything to me if it's a treatment, I must give a dosage they help me administer it to the child". (R14)

Discussion

This qualitative study explored the complex web of variables from the caregiver's perspective on the condition and therapy related factors influencing chemotherapy adherence in a low resourced setting. The findings revealed that adherence cannot be oversimplified to mean clinical prescriptions and injections but remains a negotiated effort between family resource prioritization, health system capacity and the client's body. Analysis from this study revealed that once presenting symptoms begin to reduce, key motivation is found in continuing to adhere to chemotherapy. This is re-enforced by Greer et al., (2016) in literature which stated that people tend to continue taking chemo medications when their symptoms are alleviated. Furthermore, most of the participants tend to adhere to chemotherapy based on the doctor's initial assessment of the cancer and its prognosis. Most of the participants stated that when they were told that their child's cancer was treatable, they were quick to adhere. Others, however, were motivated to adhere to treatment when told that consistency was key to achieving remission. Some participants stated that they were counselled that based on their condition (type of cancer) omitting

some sessions of chemotherapy was going to lead to a resurgence or reoccurrence. They therefore became steadfast, because when they did not even have money to undergo some chemotherapy cycles. This resonated with the findings of Greer, Jacobs, Ream, Pensak, et al., (2020) and Spragg et al., (2023) which asserted that non-adherence was seen mostly among people who have a poor prognosis or a bad outlook on recovery.

Analysis of the data showed that although patients indeed acknowledged that in spite the seeming side effects of the treatment, knowing that chemotherapy was the most effective means of treating cancer, left them with no alternative but adherence. It showed the relevance of the weight of information shared to patient by the health team to the patient's understanding of treatment protocol. Perhaps indicating that if full education on the cancer had not been carried out by the health team in the initial period of diagnosis, patients may not have adhered. Although a few of the participants expressed concern about the obvious cost as well as time spent in treating the condition, they are still engaged in the treatment because of the possibilities. These participants stated that they did so to observe improvement in the child, which would prompt seeking alternative or traditional/herbal medicine which they viewed as experimental but possible in the absence of any hospital-based remedies. These factors are indeed similar to the findings made by Folkvord et al. (2024), who posited that, once the efficacy of the chemotherapy process was seen, it was able to generate positive feedback from patients and their families alike and as such, was able to let them adhere to the treatment regime. The use of traditional herbs is common in low resourced areas and some participants in the study were thankful to the doctors for insisting on them not to mix any other alternative medicine in addition to chemotherapy during initial counselling sessions. This information helped discard the advice received from others (societal influences) suggesting they opt for alternative medicine.

Similarly, analysis affirms that improved diagnostic communication in clinical care led to better-informed parents and children in reducing non-adherence (Rossell et al., 2018). The findings, however, go a step further in stating that consistent and continuous counselling before each cycle of chemotherapy was required for promoting adherence as the one-time communication increased risk for patients to rely on peer group influence and other social factors to derive information on chemotherapy which may result in non-adherence. Other humanistic factors such as the attitude of hospital staff drew consistent praise and admiration from patients in this bracket which they said became a key drive for adherence. Some participants described how both nurses and doctors would go to the extent of supporting and playing with their wards and having time to be there for their children (Rossell et al., 2018), which they had not seen in other doctors and nurses in other departments or other hospitals for that matter. The playful and welcoming environment made participants view the doctors in the hospitals were one of a kind and had not seen their like underlying the overarching import of compassionate patient focused care (Kazak et al., 2015) and demonstrating its universality especially in highly under resourced environments.

Perhaps the most significant contribution of this study to empirical evidence is how nonclinical structural factors like the availability of hostels at a subsidized fee made adherence possible for them. Hospital subsidized hostel facilities ensured improved access to chemotherapy since patients did not

have to travel long distances to lodge when chemotherapy session was going to take more than a day to complete. This helped improve client adherence. Analysis further revealed that the financial support systems that the hospital had put in place, although unclear, largely to the caregivers as to the criteria for assistance, were central to adherence amongst most of the participants. Most participants illustrated how through the support of the paediatric oncology financial support system, they continued to adhere and were willing to continue adhering. This finding is commensurate with Rubin et al., (2019) and Mardan, Hussain, Allan, & Grech (2021) which sought to evaluate how formalized support from institutions encouraged adherence.

Implication for Practice and Policy

The findings of the study have clear and action driven implications

- Clinical Practice: Training institutions should equip our healthcare heroes to be more than medicine dispensers and to imitate clinicians skilled in practical and humanized ways of rendering care that will be seen and recognized as empathetic. Additionally, hospitals should work on building more transparent and clear pathways to support families identified as at risk of financial abandonment
- Health Policy: The study provides robust evidence for health policy advocates and NGOs to champion the funding for hospital hostels and drug subsidies

Strengths and Limitations

While in-depth interviews used and qualitative approach provides a rich contextual appreciation of the phenomenon, the personal connection of the researchers enabled a deep probe into the different aspects of this phenomenon. However, being so immersed in the research required a high level of reflexivity and continuous peer-debriefing to help mitigate any personal biases we may have had.

Furthermore, while the results of this study are conclusive interpretation of the finding, one must be cautious when interpreting and inferring the results to participants from high-income countries as this was conducted in a low- and middle-income country (LMIC) setting making it difficult for generalization. This contextual specificity may limit the generalizability of the results to other socioeconomic or cultural environments.

Conclusion

The study concluded that within the Ghanaian context, the condition-related and therapy related variables are multifaceted. Adherence is sustained when caregivers note the treatment is working and establish trust with the team guiding them to good health. Aside from this enhancing support systems, material scaffolding of care and carefully planned consistent and continuous therapeutic relationships enable chemotherapy treatment completion from the family caregiver's perspective.

Declarations

Ethical Approval and Consent to Participate

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was granted by KBTH-IRB with reference number KBTH-IRB00009/2022. Written informed consent was obtained from all participants prior to their inclusion in the study.

Consent for Participation

All participants were provided with information on the study with their respective roles and allowed time to review. Subsequently, willing participants signed written consent forms and were allowed to participate

Availability of Data and Materials

All data generated or analyzed during this study are available as supplementary information files on request.

Conflict of Interest

The authors of this study hereby declare that there is no competing interest from any organization of affiliation. They have neither personal nor financial relationships that may have influenced the writing of this paper

Authors' Contribution

Christian Benedict Afam-Adjei, Dr. Kennedy Konlan ESQ, Mrs Jennifer and Charles Afam-Adjei designed the study, carried out data collection, and the primary analysis, did the initial manuscript draft, and critically reviewed and revised the manuscript. Dr. Menford Owusu Ampomah and Dr. Luke Laari critically reviewed the analysis and critically reviewed and revised the manuscript. Prof. Lillian Akorfa Ohene conceptualized the study, critically reviewed the analysis, and critically reviewed and revised the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work

Funding

Roche Ghana provided financial support for this study.

Disclosure and Acknowledgements

We declare that this manuscript is our original work, and all references were duly acknowledged.

The authors extend their profound gratitude to the Head of the Department of Child Health, the Head of the Paediatric Oncology Unit as well as the staff for their support during the data gathering process. We

also thank all the participants represented in this study.

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