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Participant Perspectives and Researchers' Methodological Reflections on a Photovoice Project Conducted in a Malawian Informal Settlement

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Abstract

This paper reports on a photovoice process conducted in an informal settlement in southern Malawi, in a study that explored the use of solid fuels and household air pollution. Drawing on principles of double hermeneutics and reflexivity, we present both participants' perspectives, gathered through a focus group with nine photovoice participants conducted at the end of the study, and the research team's reflections, to offer methodological insights for conducting ethical, inclusive photovoice research in informal settlements. Participants reflected that they gained valuable knowledge, built community connections, and developed new skills while contributing meaningfully to research. They also reported challenges in participating in photovoice, including community suspicions of research motives, managing community expectations, and navigating issues arising from taking photographs in the community. Through this iterative dialogue between researchers' reflexivity and participants' reflections, we identify nine key lessons for the conduct of photovoice: building close researcher-participant relationships; clarifying roles and expectations early; providing comprehensive training; maintaining manageable participant numbers; ensuring meaningful and interactive dissemination; addressing ethical issues adaptively; considering sociocultural contexts; systematically seeking participants' feedback; and maintaining reflexivity throughout. This methodological paper addresses critical gaps in photovoice literature by critically examining the challenges and advantages of conducting photovoice in sub-Saharan African informal settlements, where few studies have done so. We provide practical guidance for researchers wishing to undertake photovoice in similar contexts, whether in Africa or elsewhere.

Keywords

photovoice, informal settlement, participatory qualitative research, Malawi, dissemination

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Introduction

Participatory research approaches (PRA) can effectively involve communities in the process of research and the design of interventions to address global health issues (Loewenson et al., 2014; van der Vlegel-Brouwer et al., 2023). These approaches, where researchers work with communities as co-researchers rather than subjects, enable local communities to share and analyze their knowledge and experiences (Loewenson et al., 2014). PRA often uses participatory research methods (PRM), bottom-up approaches that involve the individuals most affected in the research process. PRM promotes inclusion and equity (Agnello et al., 2025; Rahman et al., 2025), and ensure that knowledge creates benefits for those involved in its generation (Riccardi et al., 2023; Vangeepuram et al., 2023; Vaughn et al., 2013). Photovoice is a PRM method, and it has been used for decades to bring forth the voice and insights of people into research (Beukes, 2015; Wang, 1999; Wang & Burris, 1997). Photovoice projects typically engage participants in taking photographs on a particular topic, selecting their images, and discussing them to generate contextualized knowledge; some projects aim to use this knowledge to catalyze change (Seitz & Orsini, 2022), in the way Wang and Burris envisioned photovoice at the start (C. Wang & Burris, 1997; C. C. Wang, 1999). In the thirty years photovoice has been used, it has been operationalized in different ways, to enquire about different public health concerns or topics, and with diverse populations (Catalani & Minkler, 2010; Lal et al., 2012; Seitz & Orsini, 2022; Wang & Burris, 1997). However, reviews of the method have identified challenges and pitfalls with the conduct and reporting of this PRM, in particular, methodological inconsistencies and poor reporting on the method; insufficient reporting of ethical challenges; limited reporting on power dynamics within the photovoice research; a lack of details on participatory aspects; and an overall lack of reflexivity on the process by researchers (Abma et al., 2022; Catalani & Minkler, 2010; Evans-Agnew & Rosemberg, 2016; Lal et al., 2012; Liebenberg, 2018; Seitz & Orsini, 2022). Our paper addresses these gaps.

There has been little reporting on the challenges of undertaking photovoice with specific populations perceived to be hard-to-reach or especially vulnerable (Seitz & Orsini, 2022), especially in low- and middle-income countries (LMICs). This paper directly addresses this gap and to our knowledge, this project was the first photovoice study conducted in the informal settlement of Ndirande in Malawi. Informal settlements are in urban areas with insecure tenure, often inadequate housing, water and sanitation, and limited access to public services (Satterthwaite et al., 2019). In sub-Saharan Africa, 51% of urban residents live in such settlements (World Bank, 2020). Residents of these areas are most vulnerable, as they are exposed to many health risks from climate disasters to disease epidemics, environmental pollution, and violence (Alaazi & Aganah, 2020; Satterthwaite et al., 2019). The household air pollution (HAP) generated by cooking using solid fuels in informal settlements is a major health risk for these populations (Bennitt et al., 2021; Newell et al., 2017). There are also sociocultural factors that have been less researched (McCarron et al., 2020), which are complex and deeply intertwined with populations' identities, traditions, economic concerns, gender dynamics, and social inequalities. For instance, certain cultural beliefs preclude the use of particular fuels (Akintan et al., 2018); in some countries, traditional stoves may continue to be seen as cooking certain foods better, compared to clean cooking technologies (CCT) (Azanaw & Endalew, 2025; Longe, 2020; McCarron et al., 2020; Pope et al., 2017; Price et al., 2025; Uny, Chasima, et al., 2024; Vigolo et al., 2018; Woolley et al., 2021). Even though the last decade has seen a growing number of studies using photovoice in informal settlements in sub-Saharan Africa (Benninger & Savahl, 2016; Dakin et al., 2015; Harris, 2018; Karuga et al., 2022; Kimani-Murage et al., 2022; McMorrow & Musoke, 2023; Swahn et al., 2025), few have critically reflected on the method's pitfalls or challenges in this context (McMorrow & Musoke, 2023; Swahn et al., 2025).

This paper is related to the Fuel to Pot project, an exploratory study which focused on perceptions of solid fuel use for cooking and HAP in two informal settlements, one in Malawi and one in Kenya (Price et al., 2026; Uny, Chasima, et al., 2024). It offers methodological reflections, particularly on the use of photovoice in this project in Malawi, and draws lessons from the intricacies and pitfalls we encountered to better prepare other researchers working in similar contexts. We focus on the experience of our photovoice in Malawi, where the data was the richest, and use it as a case study.

Theoretical Underpinning

Our presentation of the results is inspired by an approach derived from the principles of double hermeneutics and reflexivity in social sciences. The principle of double hermeneutics, central to interpretive phenomenological analysis, predicates that researchers study people whilst they make sense of their own world. This creates a sort of "double" interpretation: a first hermeneutic where people naturally interpret their own social world, and a second hermeneutic, where social scientists then interpret this interpretation, and their own role in it (Montague et al., 2020; Smith, 2007). When applied to reflecting a PRM such as photovoice, it can yield significant benefits. Lindberg et al. showed that the principles of hermeneutics can help researchers understand the deep meaning of human lived experiences and encourage them to be open about the process of

PRM (Lindberg et al., 2013). Lindberg uniquely positions hermeneutics not merely as a method for interpreting texts, but as a reflective practice that respects and integrates the subjective lived experiences of individuals in research.

In photovoice, participants make sense of their socially constructed world through taking pictures, then describe those pictures and analyse them with the researchers; thereafter, researchers themselves attempt to understand those pictures and the participants' realities. At the same time, researchers attempt to deal with their own pre-understanding or biases through reflexivity. Reflexivity in qualitative research refers to the critical self-examination of how researchers' backgrounds, assumptions, positioning, and behaviours influence the research process and findings; it involves continuous self-awareness about how the researcher's identity, experiences, theoretical commitments, and social position affect the data collection and the analysis (Attia & Edge, 2017; Olmos-Vega et al., 2023). Cognizant of these layers of interpretation, we use this dialogical approach in the structure of the paper, and present first, the participants' own views from a focus group where they discussed their experiences of taking part in a photovoice. Secondly, we draw on the researchers' reflexive process in conducting photovoice and offer nine key lessons in conducting reflexive, ethical, and inclusive photovoice in informal settlements, which can be applied to other contexts worldwide.

Method

Recruitment

The photovoice project was conducted in Ndirande, one of Blantyre's largest informal settlements in southern Malawi, home to approximately 97,839 residents (Government of Malawi National Statistics Office, 2018). This densely populated area has basic housing, inadequate infrastructure, limited road networks, and poor waste disposal systems. Ten individuals were initially recruited to participate in the photovoice project. One participant withdrew early in the process before taking any photographs, resulting in a final sample of nine participants who completed the full photovoice process and participated in the concluding focus group discussion on their experiences with the method (Table 1) All adult participants were unemployed but engaged in small-scale businesses to support themselves, and none had prior experience with photovoice.

Before recruitment, the research team conducted the required entry meetings with traditional chiefs and local authorities in accordance with Malawian research protocols. The Malawi research team held a community meeting to introduce the study topic, explain the photovoice methodology, and invite participation. Inclusion criteria were deliberately inclusive to maximize community engagement, with exclusion limited to participants under 16, those with complete visual impairment or unable to perform photovoice activities, and individuals unable to remain in the area throughout the study period. Interested community members meeting criteria received information sheets and consent forms. For participants with literacy challenges, the information was verbally communicated in Chichewa (the local language). Following recommended practices for photovoice studies, the team selected a small, purposive sample representing gender balance and age diversity reflective of the area. The photovoice process was conducted between June and September 2022. The sessions were facilitated by a research assistant (TC) and members of the local team in Chichewa.

Methods

The Photovoice Methodology

Our photovoice method followed the six main steps we described in our results paper for the Fuel to Pot study (Uny, Chasima, et al., 2024). At Step 1, participants underwent a consenting process, were introduced to the project's aims and objectives, and were provided with extensive training on picture taking (using smartphones) as well as on relevant ethical issues. After this training, the participants were given two weeks to take photos and self-select 30 pictures relating to their perspectives and experience on the use of solid fuels for cooking in their households and community. At Step 2: during the 2 weeks, the participants selected the 30 pictures they wanted to put forward with the RA; those were downloaded and printed in hard copy

Table 1. Participants Characteristics

Characteristic	Category	Number (n)
Gender	Female	6
	Male	3
Age Group	16–18 years	3
	18-55 years	6
Total Sample Size		**9**

to be shared and used in the following discussions. To facilitate discussion of the photos by the participants at steps 3 and 4, we adapted the SHOWED model previously used by Ardrey et al. (2021) in their photovoice research on pneumonia and cookstoves in rural Malawi. This helped the participants to share and discuss what was captured in their photographs, to reflect on the issues raised and the potential solution to address those in their own context. At Step 3, in the early discussions, the group of participants mainly sorted their pictures and discussed their meaning, and agreed on initial thematic groupings. Step 4 involved participants finalizing their picture groupings, agreeing on their meaning, and collaboratively voting on which photos they perceived as most representative of each theme. The participants were given monetary compensation in line with recommendations by the Malawi National Committee on Research in the Social Sciences and Humanities, for each of the days spent doing training or analysis in the study, and for the focus group discussion. Step 5 in our photovoice was the focus group discussion, which provided the data for this methodological paper. Step 6 was the analysis of the photovoice step, the results of which were published in a separate paper (Uny, Chasima, et al., 2024).

At the start of the photovoice, most of the research team was fairly novice to the photovoice method and commissioned an expert who had conducted a photovoice in Malawi previously, Dr Ardley, to design and deliver, alongside Dr Uny, a two-day bespoke online training course on the method (including hands-on exercises). Ardrey and Uny then developed a bespoke photovoice training manual for the local research teams. The Malawi research team, in turn, designed a pictorial training manual for the photovoice participants (for them to keep as reference), which was used during Step 1. This allowed us to cascade the training from researchers, all the way to participants.

Focus Group Data Collection and Analysis

The Fuel to Pot was the first photovoice to be conducted on HAP and solid fuel use in an informal settlement context in Malawi. Therefore, we wanted to understand the experience of informal settlement participants taking part. To do so, we conducted a focus group discussion at the end of the study with all nine participants. The topic guide covered questions around reasons for taking part, views on information and training given by the team, experiences (positive and negative) of taking part, and the impact on their personal skills and knowledge. To avoid bias from the RA and to allow the participants to express themselves freely, this discussion was conducted by other study team members than the RA, who had not undertaken the data collection so closely with the participants. These were LuK, who is a communication and community engagement expert, and MC. The focus group was recorded with participants' consent and transcribed for the analysis.

To analyze the transcript, we used Braun and Clarke's thematic analysis approach (Braun & Clarke, 2006, 2021, 2023). The thematic analysis process involves six key steps: familiarization with the data, generation of a series of codes, combining and organizing themes under broader categories, reviewing the themes, defining their significance, and finally reporting on findings. In the analysis IU and LC, who are expert qualitative researchers, read the transcript each, and in meetings with TC, they inductively developed a thematic codeframe. Since there was only one transcript, TC carefully coded the transcript using the thematic framework developed and thereafter wrote a more analytical thematic summary, which we used to present the results in this methodological paper.

Results

The results are organized around two parts: first, the participants' perceptions of taking part in photovoice. To facilitate reference to Table 1, for the quotes, we use participant numbers (e.g., P01), young person (Y) or adult (A), and their gender (F/M). The second part of the results presents the outcomes of the researchers' reflexivity, which was an ongoing process of two years in the study (manifesting through many discussions and reflective diaries). That part of the results focuses on the methodological insights and pitfalls identified by the researchers.

Opportunities From Taking Part in a Photovoice

Understanding Photovoice and Being Trained in Photovoice Are Key to Participants

Multiple participants in the focus group emphasized their voluntary participation and stressed the importance of having time to discuss and communicate with their families about the research before deciding to take part.

> "*When I explained the study to my family members, they all accepted that I should take part. They knew what was going on because our [researcher] would call us, telling us that the next day, we were meeting.*" [P06-A-F]

The participants reported understanding the focus of the study easily, which they summarised as taking photos and documenting cooking practices in their own community (focusing on solid fuel use such as charcoal, firewood, maize cobs, and plastic bottles, as well as HAP).

"So basically, we were the people carrying out the research by taking pictures that tell a story about life in this area, when it comes to cooking, like the materials used." [P04-A- F]

The participants appreciated receiving comprehensive training on how to use phones to take photos whilst protecting the identity of people in their communities (e.g., ethical issues and consent issues).

"The training was very interesting; I was happy that the researcher made sure that we understood the content." [P09-A-F].

"They already told us that we were going to meet challenges. Others will accept, and others they will refuse. We should just ask for consent before taking the pictures." [P03-Y-M]

The participants expressed that the photovoice engagement and duration of the data collection were well explained by the researchers and seemed sufficient: "*The time was adequate, we were able to work well."* [P06-A-F]. Participants appreciated the flexibility the method offered.

"The good thing was that we were not submitting the pictures the same day we took them. So, we could take a picture today and take another one the next day. We were given ample time." [P01-A-F]

The RA and research team's thoughtful organization and constant communication during the study were also appreciated. The flexibility allowed participants to manage taking part alongside their other responsibilities. One participant noted:

"I was happy with this study because from the beginning, they told us that when meeting, they would tell us in advance before the meeting day. Sometimes we can be busy, but we knew that on such a day, I should be free because we are meeting for the study." [P03-Y-M]

Participants expressed that they produced a substantial number of pictures but had to select 30 with the researchers during step 2, which involved picture download from the cameras. This was challenging and took considerable time, but participants were supported one-on-one by the RA (including over several encounters). In terms of the later stages (3 and 4), participants described the process, their collaborative grouping, and analysis of photos as beneficial to better understand their collective stories.

"At first, we were just taking pictures, then when we came for sorting, we took the photos and pasted them on the walls. Then we started telling the stories behind the pictures. That made it easy for us to understand the pictures, and it was easy for us to group them according to the stories we were telling." [P04-A-F]

Taking Part in Photovoice Helps Build Knowledge and Skills

This is where the double hermeneutics is also applied. The participants expressed that through taking part in the photovoice, they gained awareness about the health impacts of cooking on certain fuels, which many had not previously understood (this is goal of photovoice to lead to raising personal awareness and empowerment, which we discuss later). At that point, participants realised they had not simply taken pictures, and for many participants, there was a new awareness, a realization that the challenges they portrayed around cooking on solid fuels and HAP were widespread in their community.

"I was very happy with this study because I thought I was the only one facing these problems. But after I started participating in this study, walking around the community, people were telling me of the same problems that I face." [P04-A-F]

Participants also reported that through doing the photovoice, they built meaningful connections with others in their community, as well as their own communication skills:

"Like I could just see some of these people when passing by. But after this research, we chat when we meet, on the phone, and this has made us know each other." [P04-A-F].

Another benefit of taking part, which participants stated, was the personal connection they had built with the researchers (particularly the RA) who supported them at each step of the process: "TC *is really good. Even though we are parting ways, deep down we are sad because she is loving."* [P01-A-F].

Finally, all participants agreed that receiving a time compensation allowance each time they met during the photovoice mattered a lot to them.

> *"The benefit is that when we met like this, we got an allowance, so that money helped us a lot because sometimes we did not have relish or even flour at home. But when we got back home after the meeting, our problems were sorted for that day and we were happy." [P6-A-F]*

Overall, the experiences of taking part in photovoice were very positive, and participants felt that the study was meaningful and useful:

> *"So, we did not work just for us to benefit, but our community and the world to benefit from the research that we carried out. That is why we consented to take part in this study. Had it been that we faced challenges, then we would not have accepted. But because this work will benefit the whole world, we will find solutions to problems we face when we cook using firewood and charcoal, maybe the diseases we suffer from because of the cooking materials will be eliminated." [P08-A-M].*

Challenges Faced by Those Taking Part in the Photovoice

Dealing With Participants' Expectations. However, participants also expressed the challenges they faced taking part. Participants noted that at the entry meetings, community members considering taking part had expected material rewards for taking part in research, such as obtaining fuels through the study ("*I was interested to take part because I thought maybe we would find help with getting wood."* [P04-A-F]), or alternative CCT. The active and direct communication of the researchers with interested participants was crucial to debunk these misconceptions. Researchers explained that providing CCT was beyond the scope of the research, which only attempted to understand the issues around solid fuel use and cooking, from the perspective of Ndirande residents.

One crucial expectation of the participants was the need for the research to be shared with the community. As one expressed: *" The aim of the study is in our area, so after finding it, they should come to us so that the study can benefit people from this area."* [P08-A-M]. This was stated because in Malawi, this is not always the case for research. Prior disappointing experiences with research in their community had created scepticism amongst the participants.

> *"After doing all those things. We don't know the result. People still ask me about a team that did that [other] study [who] were also from [University], but the results of the study haven't been seen up to now." [P08-A-M]*

Dealing With the Wider Community's Suspicions and Expectations

Participants highlighted the challenges they faced when going around in their community taking photos. Some described that, at the start of the photovoice, community suspicion was a barrier. Cultural beliefs and a lack of understanding from other community members of the purpose of this research meant that some felt researchers had ulterior motives.

> *"Different things were being said about us. Some were saying we are satanic; some were saying that we have been given phones, we want to get rich at their expense, and we want to sell their pictures. We met several problems." [P07-Y-M]*

However, the information, training, and continuous communication with the researchers helped participants to deal with this challenge and reassure community members.

> *"I explained everything about the study and showed them [community members] all the documents of what is going to happen so that they know that this is not fraudulent research." [P03-Y-M]*

Another challenge reported was that other community members who saw them take pictures in the community seemed to expect compensation when a picture was taken with them in it. To address this, researchers and participants developed a form of third-party consent (a postcard, the rationale of which we describe later in the results). Participants were also encouraged to avoid taking pictures outside their own household and family, to protect others' privacy and confidentiality.

Participants explained in the focus group that with the help and ongoing support of the researchers (the RA, who was always available), they learned to navigate these challenges.

"We were warned of these problems before going in the field. We were told not to force people who do not want. So, when they refused, we were moving on to the next person." [P07-Y-M].

Through all those efforts, the wider community became more accepting over time, and a participant expressed that later, *"when going around the community, some people were even calling us to go take pictures of them."* [P06-A-F].

Outcomes From the Reflexivity Applied by the Research Team: Nine Methodological Insights

In qualitative health research, the double hermeneutics is usually applied to the research data (McCaffrey et al., 2022). In this case, we applied it to our own methodological reflections on the photovoice process. We recognised that on the one hand, there is our experience of conducting photovoice, and on the other, the experiences and views of the participants who took part in it. We acknowledged that the two may differ in relation to each positionality. We built this way of learning from the start, through continuous dialogue between researchers and participants, through the conduct of the focus group to learn more about participants' experience of this research method, through numerous research team discussions, and reflective diaries (used 3 times in the study).

Below, we share nine main tips or lessons that are the outcomes of our own double hermeneutic reflexivity, and we openly reflect on the challenges we encountered as researchers. We focus on the intricacies and dilemmas of conducting photovoice in an informal settlement, and the ethical questions that often remain hidden in photovoice research reporting.

1. Build Close Links Between Researchers and Participants. Throughout the study, from community entry to dissemination, the research team and particularly the RA were in touch with the project participants. We established comprehensive communication channels to ensure participant engagement and trust. A WhatsApp group was created, which provided a digital platform where participants could discuss issues and support each other. Participants self-selected a "president" who served as their spokesperson. The president also helped in taking messages physically to group members who were busy at times, and could not be reached by phone. Throughout our photovoice, at each session/step) we began with a recap and with feedback, creating opportunities for participants to voice concerns and collaboratively resolve issues. By adapting to participants' concerns, the project maintained engagement while respecting participant agency and safety considerations.

2. Clarify Roles, Responsibilities, and Expectations at the Onset. Through this photovoice, we learnt that phtovoice studies aims and scope must be made clear to all from the start, and that roles and responsibilities between the research team and the participants must also be clear from the onset. For instance, the RA drafted an agreement on the use of the project assets (the phones) for participants at the start. This agreement stipulated the responsibility of both parties involved; it was read, discussed, and agreed upon by participants at Step 1. The research team also took its responsibility to protect the participants from risky phone usage. To reduce the risk of being implicated in financial scams, the phone SIM cards were registered with a project staff member's name to ensure that they could not be registered for mobile money transactions or used by scammers. SIM cards used for the project were relinquished by participants at the end of the project. However, participants were gifted the Android phones at Step 6 of the process, so they could continue to use them for the future (SIM cards are cheap in Malawi and can easily be replaced; phones are expensive and a major family asset in informal settlements).

3. Train the Participants Fully and Build Their Skills. Only one participant recruited had ever participated in a research study before, and none had owned or used a smartphone before. We trained all participants in basic picture taking. As found in previous research, we identified that the use of smartphones for photovoice was easier than using disposable cameras (Foster et al., 2022) and enabled participants to gain useful life skills (Swahn et al., 2025). One of the aims of photovoice should be to strengthen capacity in communities (Oakes et al., 2022; Strack et al., 2022). Therefore, we developed a training manual for the participants, which we covered with them in Step 1 and then printed to give to them (we also uploaded it to the phones provided). The manual is provided as a supplementary file 2. It covered the study topic, instructions on how to take pictures, guidance on ethical considerations when taking pictures, and protecting privacy. All those issues were discussed at length with the participants on the training day (Step 1). The participants valued this training, in similar ways as has been reported in a recent photovoice study with women in an informal settlement in Uganda (Swahn et al., 2025).

4. Keep the Number of Photovoice Participants Low. As explained in this paper, photovoice can be a lengthy PRM. Once trained (step 1), participants are often keen to take many pictures, but this can make collaborative co-analysis lengthy and can delay small exploratory studies significantly. Whilst we had hoped to select 50 pictures per participant at the start, we later reduced this to a maximum of 30 to facilitate Steps 3 and 4. Participants did take more pictures, but we explained to them that in the end, they could only self-select 30 to download for the study (though they could keep the others). Photovoice numbers

Figure 1. Photos from the sorting and analysis of the pictures, (A) shows pictures pasted on the walls during picture discussions, (B) shows pictures being sorted into themes, (C) shows project participants during a discussion, and (D) shows the participants during the sessions

must be commensurate with the study's scope and funding. Providing such guidance helps to avoid an overwhelming volume of images, thereby streamlining the data collection process. It also ensures that participants remain focused on the study topic, capturing photographs that are directly relevant to the study objectives rather than producing large amounts of unrelated material. This level of clarity contributes to methodological rigor and enhances the quality of the data generated, and facilitates the analysis.

There are other practicalities too in an informal settlement environment, where space can be at a premium. As described in our methods, we used a community space for those discussions and stuck the pictures on the walls to foster discussion and ease the photos sorting (an example is shown in Figure 1); this process would have been more difficult pragmatically, and lengthier with a much larger number of pictures.

5. Dealing With Arising Ethical Issues and Wider Community Expectations. Community perceptions and expectations regarding the study prompted deliberative exchanges between researchers and participants. In response to the community-based concerns previously outlined, the local research teams developed a third-party consent protocol utilizing a dual-purpose postcard system to document evidence of participants' consent-seeking behavior when photographing community members. A large-format postcard was printed featuring the study information on one side and space to record third-party consent on the reverse. The postcards were translated into Chichewa, and a template in English is provided as supplementary file 3. Upon completion, one postcard was retained by the community member who had been photographed, and the signed duplicate was kept by the RA, while adhering to the data protection protocols established by the partner universities.

We raise another critical ethical issue, around compensating participants for taking part in a photovoice method. This matters especially in informal settlement environments where poverty and unemployment are high (Alaazi & Aganah, 2020; Karuga et al., 2023; Weaver et al., 2023). This ethical issue of PRM is seldom discussed (Nyangulu et al., 2019; Saleh et al., 2020). We recommend setting compensation levels for photovoice in line with research practices in the country where the study takes place. Photovoice studies involve repeated engagement between participants and research teams over a sustained period of time, and we offered compensation at each contact throughout the process (steps 1 to 5). This ensured participants were never out of pocket for taking part in the study.

6. Be Aware of Economic, Social, and Cultural Factors (Especially in Informal Settlements). Each photovoice takes place in a different setting, with a different community, and a different set of economic, social, and cultural norms (Catalani & Minkler, 2010; Lal et al., 2012; Seitz & Orsini, 2022). This matters in informal settlements, as those populations experience severe poverty and many risks and vulnerabilities, but can also be transient and come from very different cultural backgrounds (Adams et al., 2022; Ssemugabo et al., 2020; Weaver et al., 2023). In our case, some community members were resentful towards the study because they thought the project had ulterior motives and even told the selected participants that they believed that by taking part, they may be coerced into joining a cult or be victims of satanism in this research. It is key to note that beliefs around witchcraft are still common amongst some parts of the population in Malawi (Adolfsson et al., 2024). We took time to train and dialogue with the photovoice participant to deal with this, and they made efforts on their part to alleviate some of the community members' concerns in this regard.

Other practical or technical issues, perhaps more acute in informal settlements and in sub-Saharan African countries, relate to the lack of reliable electricity supply, as discussed by McMorrow and Musoke (2023). In Ndirande, most people have no electricity connection (over 80% of the population in nearest Blantyre use other energy than electricity; Republic of Malawi-Ministry of Energy, 2024), and rely on charging their phones at charging centers where they are charged a fee. It is key to ensure that participants' costs for taking part are fully covered (including money to charge phones and purchase data). Participants costs for taking part must be covered, as people in informal settlements already experience poverty and insecurity (McMorrow & Musoke, 2023; Swahn et al., 2025).

7. Ensure You Disseminate and Discuss Results With Participants. As shown above, our participants expected feedback from the photovoice after the study (and for us to avoid 'helicopter' research). 'Helicopter' research is defined as a practice where researchers from Global North countries conduct studies in the Global South without meaningful collaboration or benefits for local people. It is typically extractive, with Global North institutions sometimes publishing findings without sharing credit or strengthening the capacity of the local population or researchers (Haelewaters et al., 2021; Uny, Kambalame, et al., 2024). The lack of photovoice reporting on dissemination has been raised in several key papers (Abma et al., 2022; Evans-Agnew & Rosemberg, 2016; Liebenberg, 2018). This was a gap we were determined to address in our study and will report on elsewhere (Kalumbi et al., 2025). To disseminate, we used a visual exhibition of photovoice photos and engaged local communities in a kind of 'right of response' to the results and a discussion around possible solutions. We later cascaded those discussions to policymakers, discussing the same results, and the newly gained community feedback. These dissemination events fulfilled multiple purposes: validating findings, contextualizing research, enhancing community understanding of the issues, strengthening relationships with the community and key stakeholders for future actions. In photovoice, the process of dissemination is crucial, and can be key to bringing about changes and empowering communities to act.

8. Evaluate and Seek Feedback From Participants. The double hermeneutics and reflexivity principles applied in our research meant that we were keen to understand what it meant for residents in informal settlements to participate in a photovoice study. This is why we conducted a focus group discussion at the end of the photovoice process, to understand the participants' motives for participating and their experiences of the process (perceived challenges and benefits). This is not routinely done in photovoice studies, but we propose that it should be embedded in the photovoice method. Any form of evaluation (e.g., questionnaire, group discussion, informal discussion, mapping, etc.) will enable not only an understanding of the participant's experiences but also strengthen the research team's capacity (Swahn et al., 2025).

9. Apply Reflexivity Throughout the Process. At each step of the photovoice process, the research team applied reflexivity. The team met at least once a month and used online reflexive diaries at key points during the project as a continuous feedback loop on our progress and research approach. Through these processes, we reflected on our overall experience as an international multi-disciplinary team (Uny, Kambalame, et al., 2024) We reflected on photovoice obstacles, such as how COVID delayed our training for participants (because of Malawi lockdowns). Reflexivity was crucial to apply during steps 3 to 5 of the photovoice, where researchers had to bracket their knowledge to ensure that the views and experiences of the participants came first. Bracketing in qualitative research is the process by which researchers set aside their own beliefs, preconceptions, knowledge, and experiences to approach the data with a fresh perspective and reduce bias (Clark et al., 2021). Reflexivity needs to be applied by researchers throughout the photovoice process, from design to analysis, writing and beyond.

Discussion

In this paper, we address both geographical and methodological gaps in the conduct and reporting of photovoice. Seitz et al., in their thirty-year review of the method (2022) highlighted the lack of reporting on photovoice challenges with specific populations. Recently, authors have reported on photovoice conducted with disabled groups (Macdonald et al., 2022) and children (Abma et al., 2022). The last decade has seen a rise in the use of photovoice for health research in informal settlements in sub-Saharan Africa (Harley, 2012; Harris, 2018; Karuga et al., 2022; F. Khan, 2015; Kimani-Murage et al., 2022; Ssemugabo et al., 2020; Swahn et al., 2025; Willan et al., 2019). However, to our knowledge, no one has critically examined the use of the method in this context. By undertaking the first photovoice in an informal settlement in Malawi, we highlighted the complexity of the issues (Uny, Chasima, et al., 2024a); using the pictures and voices of the participants, we developed a socio-ecological model (Figure 2 provided as supplementary file 1) of solid fuel use for cooking in informal settlements for use by others undertaking research in similar African contexts.

On a practical methodological level, this paper addresses the general lack of reporting on methods and processes used in photovoice (Lal et al., 2012; Seitz & Orsini, 2022). While most photovoice studies conducted in informal settlements emphasize the method's effectiveness in exploring important local issues (Benninger & Savahl, 2016; Dakin et al., 2015; Harris, 2018; Karuga et al., 2022; Kimani-Murage et al., 2022; McMorrow & Musoke, 2023; Swahn et al., 2025), only a limited number report in detail on the pitfalls of using this research method in such contexts (McMorrow & Musoke, 2023; Swahn et al., 2025). McMorrow et al. described the use of photovoice through short case studies from Uganda (McMorrow & Musoke, 2023). They briefly highlight logistics challenges (such as the lack of electricity), challenges around building trust, power dynamics (including the 'social desirability' of participants taking pictures only because the researchers instruct them), and issues around ethical approvals. However, McMorrow et al. offer few details about how such problems were overcome in their research (2023). The only other paper that describes the benefits and challenges of conducting a photovoice study in an African informal settlement is the recent paper by Swahn et al., also from Uganda (Swahn et al., 2025). This paper is based on notes taken by researchers at the final validation and discussion meeting for the TOPOWA project, as part of a cohort design study which explored the links between the adverse effects of poverty and mental ill health among young women in Kampala (Uganda). In that study, fifteen young women residing in informal settlements were asked to reflect on post-it notes about their expectations around the photovoice, their experience of taking part, and what they liked or disliked most about it. Our findings echo some of their findings. For instance, the women in Swahn et al. 's study stressed the beneficial social aspect of being part of a group, the enjoyment of learning to take pictures, and of taking pictures in their communities; they also reported feeling empowered and expressed the benefits of receiving compensation (as food is scarce in the informal settlement).

Our paper adds to this scant literature by showing in detail how participants viewed and valued the method, and how taking part increased their ability to deal with ethical issues and consent. Our results highlight the importance of continuous two-way communication between researchers and participants in photovoice to address challenges as they arise. We describe in detail the participant selection and the training we offered, an aspect lacking in most photovoice reporting (Catalani & Minkler, 2010; Lal et al., 2012). We also explain fully the approach we used in the co-analysis of the photovoice data. The biggest contribution of our paper is its discussion of the ethical challenges that may arise in photovoice in an informal settlement and how we addressed them (e.g., third-party consent postcards, phone contracts, ongoing support to deal with community suspicions, and compensation).

Our reflections around clarifying roles and responsibilities in a photovoice relates to the issue of empowerment, often a claimed goal of this type of study, in a method where researchers still yield power in the process, due to their own social and economic status (McMorrow & Musoke, 2023). Key epistemic injustices and power differentials remain in the conduct of global health research generally (Bhakuni & Abimbola, 2021; M. Khan et al., 2021; Uny, Kambalame, et al., 2024). Within those constraints, we gave the photovoice participants power to do the research and to interact directly with the results through our novel dissemination. It is still too early to state the impact of our photovoice research regarding HAP, on future actions. As Liebenberg expresses (2018), the empowerment elements of photovoice should ideally extend beyond providing phones or enhancing participants' skills through training. Creating spaces for participants to gain awareness of issues and share their experiences is only an initial step in the empowerment process.

Empowerment through photovoice has been described to have four crucial access points: empowerment to knowledge, empowerment to decisions, empowerment to networks, and empowerment to attain resources (Liebenberg, 2018; Wang, 1999; Wang & Burris, 1997). The first access point, knowledge acquisition, is easier to achieve through participants' own discovery processes and skills acquisition, and our study achieved this. Empowerment to take part in the decision-making process is harder and requires broader determinations about community needs and resource allocations (which when related to CCT demands Government action). Accessing new networks through photovoice is also hard. Beyond research networks, a photovoice should encompass building social capital and connections that can sustain advocacy efforts after the research

ends. We achieved this to an extent, in that our photovoice participants are still a constituted group advocating for change in their communities. Achieving the four aspects of empowerment through photovoice alone may be difficult, especially in informal settlement contexts, where resources are scarce, and other priorities may take precedence for people.

Limitations

Several methodological and participant-level limitations warrant acknowledgment. From our researchers' perspective, we listened and addressed the ethical issues associated with pictures of third parties in the community through the consent postcard as described above. However, it is possible that the postcards may have created expectations for the other people in the community. Once the photovoice participant left the signed consent postcard with community members after taking their picture, some residents may have expected to receive some personal benefits from the project. In fact, some of our participants reported discomfort when community members expected compensation after being photographed and sought researcher support to navigate these situations. This is where the participants' training and continued dialogue were key with the research team. This is also why researchers must be clear with the aims and scope of their study, so they can be communicated to other-non-participant community members.

There are other limitations, grounded in our photovoice participants' perspectives. There are potential emotional impacts from taking part in this type of research, where one may need to navigate community members' suspicions or beliefs about research. We discussed and resolved these through meetings between the Malawi researchers and participants, and the link with the RA [name] was invaluable in this regard.

In addition, participants faced constraints in deciding for themselves on which of their pictures to self-select for their final 30, which forced them to decide what aspect or community perspectives to include or exclude from the final dataset. We addressed this by taking ample time to sit with every participant (sometimes in several sittings) individually, as they self-selected their final 30.

The conduct of photovoice in one informal settlement in Malawi may be perceived as limiting the transferability of our lessons. However, we believe that our methodological insights apply to any photovoice undertaken in any informal settlement in Africa, and beyond.

Finally, we acknowledge the limits of what research alone can achieve. While photovoice can enable participants to gain knowledge and voice experiences, true empowerment encompassing sustained access to decision-making, networks, and resources is often beyond the scope of research. This is particularly salient in informal settlements where systemic inequalities persist.

Conclusion

This paper has examined the methodology and implementation of photovoice research within an informal settlement in Malawi, as part of a broader study exploring solid fuel use and household air pollution. By bringing together perspectives from photovoice participants and our own research team's reflections, we document both the transformative potential and inherent challenges of conducting participatory visual research in marginalized urban contexts.

Photovoice offers diverse benefits when engaging with communities as it is easily adaptable, inclusive, interactive, and remains a key participatory research method. Our findings demonstrate that when implemented thoughtfully, photovoice enables informal settlements community members (whose voices are often marginalised or unheard) to document their realities, build valuable skills, and contribute meaningfully to knowledge creation. Through our nine key lessons, born out of our own reflexivity, we provide concrete guidance for researchers, from building close relationships and comprehensive training to ensuring meaningful dissemination and maintaining reflexivity throughout. In our research, we applied hermeneutics in the way Lindberg intended (2013), not merely to interpret data, but as a reflective form of research practice. Through our reflexivity, the double hermeneutics became at times a triple hermeneutics. Participants not only made more sense of their world and issues of solid fuel use for cooking, but they also made sense of being researchers in their own communities (and the challenges that involve). Finally, we, as researchers, interpreted their interpretations and addressed their reflections and ethical dilemma, thus amending our own practice as a result. Reflexivity by researchers and attention to ethical dilemmas are key to avoiding photovoice becoming a more instrumental participatory research method.

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Ethical Considerations

We obtained ethical approval for this study at the University of Stirling (General University Ethics Panel 1828), and at the Malawi University for Business and Applied Sciences (MUBAS) through the National Committee on Research in the Social Sciences and Humanities in Malawi (No. P.11/21/607).

Consent to Participate

Written informed consent was sought for all participants. For those aged 16-18, an assent form was given in writing by participants, and a consent form for their parents was also given in writing.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statement

All the data related to this paper is contained in the manuscript and attached supplementary files. The participants gave their verbal consent for the photos of the photovoice meetings to be used in publications. No personal data from any of the participants are included.

Supplemental Material

Supplemental Material for this article is available online.

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