



Impact of South Africa's April 2022 floods on women and men's lives and gender relations in low-income communities: A qualitative study

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ABSTRACT

In 2022, South Africa faced devastating flooding which resulted in the loss of at least 425 lives and widescale destruction of property. Using qualitative methods, we describe the gendered impact of the floods on homes and lives of women and men from very low-income housing areas. We conducted 16 in-depth interviews with women, and eight single-sex narrative group discussions and with 35 women and 15 men from flood-affected areas. The women were research participants in a project that commenced prior to the floods, and the men were recruited for this study. The floods were described by many as 'heart-breaking', as neighbouring homes collapsed, children were swept away, and people known to them lost their lives. However, other participants asserted that the floods 'didn't affect them much', before describing considerable impact on their houses, families, possessions, neighbourhoods, jobs, and other aspects of their lives. After the initial struggle to secure their homes, and rescue family and possessions from the floods, participants were faced with extensive interruption to water supply and electricity, which severely exacerbated stress, especially for women. We describe how the impact of the flooding unfolded and largely followed the contours of gender relations, rather than disrupting them. Most women did not describe violence against women (VAW) as escalating after the floods, but for those who did, the pathway followed the impact of the floods on men's access to the central tenets of successful masculinity, notably the provider/protector role, and lashing out response. Participants also emphasised that their lives continued much as before once the immediate aftermath of floods was past, and in so doing demonstrated significant resilience, which is not described in existing models of disaster impact on VAW.

1. Introduction

Three decades after the advent of democracy, South Africa is still grappling with the legacy of colonialism and apartheid (Coovadia et al., 2009). There are levels of economic inequality that are almost unparalleled globally, with rampant unemployment, especially of youth, fuelled by a highly dysfunctional education system (Bloch, 2009). The country remains divided on racial grounds and access to jobs and economic opportunities, as well as living spaces, are still shaped by the apartheid racial hierarchies. The consequence is that in many urban areas, large informal settlements and very low-income housing areas exist as part of the legacy of apartheid spatial planning, and these are predominantly home to poor, unemployed or marginally employed,

Black Africans (Gibbs et al., 2014; Bouchard et al., 2023). Against this socio-political background, the country also now faces the global weather events driven by climate change.

Extreme weather occurs from time to time in most coastal regions, and the metropole of eThekweni, in KwaZulu-Natal Province of South Africa is no exception. However, previous experiences did not prepare the metropole, or its populace, for the rain that fell on 11–12 April 2022, with 300 mm or more recorded in the 24-h period (South African Weather Service, 2023). There were 425 deaths reported in affected areas and over 100 more injured or missing (Government of South Africa KZN, 2023), and an estimated 13,500 houses and 124 schools damaged or destroyed. Over 4,000 of the damaged or destroyed homes were in informal settlements, where residents are particularly vulnerable due to

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extreme poverty and precarious construction. These areas are frequently built on the sides of steep hills that edge deep ravines and are very vulnerable to flooding and landslides. Much of eThekweni was without electricity and water for days and weeks due to damage to water treatment and power plants, and roads and mobile phone infrastructure were also impacted (International Federation of the Red Cross, 2022). To make matters worse, this was not the first catastrophe to affect the area, as nine months before there had been widespread, politically-motivated, community rioting, manifested chiefly as looting and infrastructure damage. This had had extensive impact on the area and resulted in widespread job losses, which were particularly hard after the impact on the economy of repeated hard Covid-19 lockdowns. Following the April flooding, there have been several publications about the climatic basis for the extreme weather conditions and general discussions of disaster impact and preparedness related to the Province (Bouchard et al., 2023; Naidoo et al., 2022; Thoithi et al., 2023), but much less focus on the impact of the flooding on the lives of ordinary women and men living in low-income areas of eThekweni, or on how social constructions of gender impacted their experiences both in the floods and their aftermath.

Gender issues have been a focus within disaster sociology, but have long been regarded as an area that is understudied (Enarson, 1998; Alston, 2014; Fothergill, 1996). Recently there has been a developing body of research examining the impact of human driven disasters on individual's health and wellbeing and the role of climate change on this (Watts et al., 2017; McMichael and Lindgren, 2011; Benevolenza and DeRigne, 2019). A recent review of the impact of climate change on disasters and mental health in low- and middle-income countries, identified 58 studies, which showed an association between disaster exposure and worsened mental health, and recognised the particular vulnerability of low income communities. However, most of the studies were conducted in Asia, and none in Africa.

Similarly, a recent review by Thurston and colleagues explored the association between natural hazards, disasters and violence against women (VAW) (Thurston et al., 2021). The authors identified 37 studies, and from 17 qualitative papers they outlined three potential pathways to exacerbated VAW. The first pathway was through increased levels of stressors triggering VAW, including poorer mental health, impacting intimate partner violence (IPV) through increased substance abuse, and empathy with the violent partner leading to under-reporting of VAW; loss of housing leading to displacement and more dependence on the abusive partner; and loss of livelihoods leading to greater financial dependence, more transactional sex and looting and/or crime, leading to more conflict between partners and under-reporting of VAW. The second pathway was through an increase in enabling environments, with the breakdown of law and order and limited police presence, or inappropriate police conduct, leading to under-reporting of VAW and women having to stay in high risk displacement camps, or shelters, without security. The third pathway was through the exacerbation of underlying drivers of VAW including inequitable gender norms, low power of women and girls, rigid gender norms and women's financial dependence on men (Thurston et al., 2021). There was only one study from Sub-Saharan Africa. As such there is little evidence from Africa, on how flood disasters impact VAW, and what factors may promote resilience. Understanding this is critical for strengthening disaster-response programming.

In order to describe some of the impact of the 2022 floods in eThekweni, South Africa, on the lives of low-income, young women and men, and to contribute to this literature, we undertook a longitudinal qualitative study. We sought to understand how research participants described experiencing the floods and their aftermath, and how these experiences provide insights into disaster exposure and its links to VAW. In the paper we will first describe the very routine activities of daily life that they were engaged in when the rain started, how they first came to realise that the rain was unusually heavy and how it impacted on them differently depending on their circumstances. We will then describe how

the impact of flooding was highly gendered, and followed contours of participants' relationships before the floods. We will discuss the resilience that was visible in the interviews and reflect on the relevance of Thurston et al.'s framework (Thurston et al., 2021) for our participants.

2. Methods

The women participants in this study were approached because they were involved in another small study at the time that the floods occurred. This research was being conducted to test a questionnaire prior to an intervention evaluation. For this purpose, 100 low-income women were recruited by the non-governmental organisation Project Empower in eThekweni municipality (including the city of Durban). Seventy-three had completed a structured interview before the flooding commenced and 27 did so just afterwards. To realise the opportunity to understand the impact of the floods on ordinary people's lives, the research team amended the study protocol to undertake qualitative research and to allow for a re-survey of the women two months after the floods, with an adapted questionnaire to capture the impact of the flooding (data not presented here). The revised protocol also allowed for recruitment of men from similar areas to those of the women.

Of the original 100 women, 69 agreed to the second survey. From examining the data, 32 of the most flood-affected women were invited to participate in further research. Thirty women agreed to participate in five group-based narrative interviews, attending in groups of 2–10 women, which were held in late August 2022, four months after the floods. Thereafter 20 were invited for additional individual in-depth interviews, following a review of the narrative interview transcripts. They were chosen as women who had closer intimate relationships i.e. cohabiting or women who had partners for longer. Sixteen consented, and these interviews were conducted in November 2022, eight months after the floods.

Fifteen men were invited to participate in three group-based narrative interviews. Ten of the men, were known to Project Empower and had previously participated in its activities. An additional five, slightly older men, were recruited through snowball sampling. These interviews were held in November and December 2022, 8–9 months after the flooding.

In the group interviews, participants were invited to share their experiences of the floods in turn and at the end of the interviews a general discussion on experiences of crime since the floods and hopes for the future were held. The groups were facilitated by staff who had been given an opportunity to talk about their own experiences of the floods in training. They were introduced as providing a chance for each participant to talk about their experiences with the rain and floods and how it has since affected their lives. The facilitator had probes to ensure that participants provided an account of their home circumstances, what they were doing when the flood started, how the rain, flooding and their impact unfolded, and their experience of gender relations in the context of the flooding. The subsequent in-depth interviews held with women eight months after the floods, focused on their relations with their intimate partner, in all cases a boyfriend. They asked about the nature of the relationship, whether and how the floods had impacted this relationship, and whether women perceived the floods to have impacted their lives in other ways. All interviews were conducted in isiZulu and audio recorded and captured in contemporaneous notes and, subsequently, the recordings were transcribed and translated into English. The interviews were held in the offices of Project Empower and lasted 2–3 h for group interviews and 30–60 min for individual interviews. They were conducted by trained staff of Project Empower.

The data were coded initially into broad themes that mapped on to the scope of inquiry and thus related to the timing of the account in relation to the floods (before, during, afterwards) and the broad categories of relationships with boyfriends and girlfriends and flood impact. As a second stage, the data within the codes were analysed inductively, with sub-codes emerging from the data. Data were organised for the

analysis in Word. Coding was done by the first and last authors.

Ethics approval was given for the study by the Human Research Ethics Committee of the South African Medical Research Council. Participants were reimbursed R250 (about US\$15) for each interview. Participation was voluntary and written informed consent was provided. Interviewers were trained to contain expressions of emotion during interviews by taking time, pausing and, when needed, offering the participant to discontinue. Referral to a study psychologist was available but not used.

2.1. Study participants

The women lived in eight low-income areas, across about 30 square kilometres of eThekweni municipality. The mean age of the women participants in the group interviews was 26 (range 19–45 years). Fifteen of the women spoke of their children, ranging in age from 2 months to 10 years of age, seven women did not have children and eight did not mention children. Nine of the women had their children living with them and six women's children lived elsewhere with her family, or that of the child's father – usually in a rural area. Two of the women lived on their own, six lived with their partners (five male and one female partners), and the other women all lived with different members of their natal family. Nine of the women lived, or in one case slept at night, in a structure that was built from impermanent materials – usually sheets of corrugated iron electroplated with zinc (referred to just as 'zinc') on a wooden frame (known locally as a shack), the other women lived in structures that were made of bricks or cement blocks.

Ten of the men were 18–24 years and five were 25–34 years. Five of the men interviewed mentioned having their own children, and one was caring for his sister's child. Two men lived with their girlfriends, two lived alone, but the others lived with their natal families. Three lived in shacks, whilst others lived in houses made of bricks or cement blocks, although two slept in outside rooms of wood and zinc in the family's yard. The men lived in the same informal settlements as the women.

3. Findings

3.1. Initial awareness of the disaster and impact of the floods

The rain fell from Friday 8th to Tuesday April 12, 2022, although the downpour was reportedly heaviest on different days in different places. When the rain started, participants were engaged in a range of very ordinary daily activities. One was preparing to celebrate her birthday, others for a night of partying, some were travelling for work, some returning home after a day's work, one had just lost her father, and others were just sleeping or resting. Heavy rain is normal at times in eThekweni so at first, none of the participants thought there was anything unusual when the rain started to fall. Thozamo, a young man, explained the moment when this changed for him:

I saw when the weather started changing and the sky turned black. I saw when some people's houses started collapsing that's when I realized that the rain was heavy (group interview 8 months post-floods)

The impact of the floods on participants varied. Some lost all, or part, of their homes and witnessed people being swept away and drowned. Others faced much less impact, and often started their account in the narrative group interviews with a variation on "at home, the floods did not affect us that much". However, they continued to describe their experiences, revealing a degree of emotionality that showed that the floods' impact was much wider than the narrow impact on individuals' housing or possessions. This was summed up by Thandeka, a young woman, who explained "what I believe affected me the most is that they [floods] affected the community".

Mandla's flat where he stayed with his girlfriend was not damaged, but he braved the rain to assist his mother. Whilst doing so he witnessed 'heartbreaking' scenes unfolding:

I saw the zinc sheets, blown away from some of the houses, cut a child badly. The child was coming out of its home, that was getting swept away, the child was trying to run away, while the parents ...were trying to carry out their possessions. I don't think the parents found their child, because when I tried to go help them, I ran into another parent that lives close by, who told me that three children had been swept away and that I was not going to be able to help them. The situation was bad... it was painful... and I know that I will never be able to forget what I saw, even if it didn't happen to me. It was heart-breaking. (group interview 8 months post-floods)

Ayanda's home flooded at night when her family were sleeping, and they woke to find her sister almost washed away:

My sibling, who is the lastborn told us that it was better for her to sleep on the floor, and she is the only one that was almost swept away by the floods, because we were not aware... The child was shivering and floating on the water, and she was not feeling anything. She only became aware when we were told to wake up since the house was full of water.. we were all sleeping, and fortunately my father woke up, only to find that the child is already floating on the water, and she can't feel anything. We were also wet since the bed that we were sleeping on was wet, and the walls are cracking. I was really disturbed. (group interview 4 months post-floods)

Since heavy rain often penetrates the roofs of houses, the realisation that there was something unusual happening dawned gradually. When participants began to realise that the rain was much heavier than usual, they responded in different ways. Some were struck by the urgency of the situation and immediately felt that something had to be done, either at home or to help neighbours, and sprang into action. The reactions of others ranged from ignoring what was happening and carrying on with plans for the day, to taking to their bed and sleeping, and, in one case, starting very early to drink alcohol. Several of the women described their frustration at having brothers at home who did not help them when they were trying to rescue possessions or divert water around the home. How participants responded depended in part on how they were affected and what they perceived was going on around them, as Nqobile (a young woman) explained:

On the day of the floods, as you would find me sitting alone, people would go to work in the morning and I slept. So, I wasn't aware, I thought that it was just a light rain, up until ...my aunt from [name] called and asked how we are doing, she was checking on us. She was the one who ...started telling us that "when we were up there [near the freeway]... [large shipping] containers were falling towards the roads, and the cars were swept away, so many things were happening, and there was a damage. That's when I started panicking, it means that the rain was heavy. (group interview 4 months post-floods)

Some became very involved in moving possessions, and in some cases moving themselves and family, to safety. Dudu described how one of her neighbours called out to get help and be rescued:

I remember some girl was told to get out of her house, and she kept saying the rain will stop, but when the situation got worse, she started panicking, wanting someone to rescue her, she was saying whoever fetches me will get this bottle of spirit (alcohol) (laughing)... People indeed really went to rescue her. You would find that indeed she has been piggybacked [carried on a person's back], with dirty feet (laughing)... (group interview 4 months post-floods)

In some communities, homes had collapsed on their occupants and community members assisted with digging out the trapped neighbours, or retrieving bodies. One participant described the frightening moment when the retaining wall of their house (built to hold back the soil from higher land) collapsed and they knew that their neighbour's house could now fall on them. And all they could do was 'pray for the rain to slow down'.

Participants were hugely affected emotionally by what unfolded

around them in the floods, and took steps to help neighbours and family, where they could. Many felt frustrated at being unable to do anything as homes were swept away. One man described it as ‘heartbreaking’ seeing his neighbour’s house collapse on them and their furniture. He told how a lot of people helped where they could. Another woman described how a friend of hers had lost her whole family, even her child, and another how a neighbour lost six of her seven grandchildren. Many of the participants spoke of how terrible it was for them hearing of people they knew in the neighbourhood or had been with at school dying in the floods. As Thobeka, a young woman, explained:

I had to wake up and check how my neighbour was doing and it came to a point that ...the water was around me, I realised that, no, I need to run away now. A girl was in the house...with a baby, she was no longer able to get out of the house and come to our side, so we took a big metal basin and pushed it to her side, and she put the baby into this basin, now it is difficult to go up to the hill, however, people were helping us ...[then] we went to the halls [shelters] (group interview 4 months post-floods)

Others were following the accounts of impact posted on social media, and followed stories of loss of life, sometimes of people they knew.

3.2. The immediate aftermath

As the days unfolded and the severity of the impact became apparent, more and more participants were drawn into action in different ways, and communities came to the aid of those in need. Those whose houses were more resilient provided shelter for neighbours who were worse affected. Others began to move furniture and possessions to safety.

Two of the female participants moved to shelters and several moved in with friends. Dudu spent a week in the shelter. They communally cooked food provided by local community groups. The women slept on one side of the hall and men on the other, which women found quite frightening. Some moved to stay with friends. It was a common theme that those with more resilient homes often took in friends, neighbours and family members who were more affected.

Participants moved back home as soon as they could, and often worried about flood damage and theft at home. Men who sought shelter mostly described concerns about being dependent on others for help, which sat uncomfortably with Zulu-ethnic ideals of manhood (Hunter, 2010). Seeking control of their situation, they left shelters and temporary accommodation as soon as they could. Several described loss or damage to food in the floods and some did not have enough when they returned home. One participant described begging for food on the streets from cars and from people living in flats. Back home, cooking was difficult and women shared available stoves, and beds and clothing were often very wet and mud-stained and sometimes had to be picked up from the streets.

A near-universal flood impact was the loss of electricity and water supply, but this was mostly described as a problem by women as it particularly impacted them. Thembeka described the frightening realisation that the walls and furniture of her house were conducting electricity, because of the water, before supply was lost.

The water kept entering the house, and it was no longer possible to move in the house. The entire house was now electrically shocking, when you touch the wall, it was shocking, you touch the fridge, it was shocking, and the children were complaining that they are hungry, now I didn't know what I was going to do, there was electric shock everywhere in the house... then electricity just went off (group interview 4 months post-floods)

Lossing electricity impacted women particularly as they then had to cook on open fires, in the rain. Those with gas stoves, found that gas ran out and they struggled to find supplies. Water supply was similarly lost. Fetching water was construed to be the preserve of women and many had to get up in the early hours of the morning to collect it in buckets from neighbouring community springs or taps, as Odwa explained:

Some things are known by women. You know, as a woman, that when there is no water, I have to go fetch itEven if I had a man, I wouldn't say he must go look for water... (group interview 4 months post-floods)

Some described very risky walks through forested areas in the early hours of the morning, while still dark, to collect water, areas where there was an ever-present fear of encountering criminals and rape. Other described their distaste at the filth in the area that they had to go to for the water. As one woman described:

The issue of floods affected me seriously. I was also there. We were forced to get another place where we would build our house because the yard and houses crumbled... The thing that was disturbing us is the issue of water. We were forced to go and fetch water from the [natural] fountains. I don't even know M[...] fountains, my lord, where trash, old rompers, pampers and everything is thrown ... (group interview 4 months post-floods)

Water supply became a major point of contestation in the flood-affected communities. Some communities with taps were selling water to those from other areas. There were many accounts of such free municipal water being sold. Water tankers intended to supply cut-off areas were often said to be routed to more privileged areas, or only available after political intervention. It was also notable that some of the male family members and boyfriends had access to cars, but only belatedly offered to assist women with water collection. This may have been because vehicle mobility was severely impacted by the floods with roads being washed away in sections and in other places being threatened by subsidence, and some areas were completely inaccessible from the outside. However, participants implied that where assistance was possible it had not always been offered.

Many of the participants spoke of escalating crime after the floods. This included men stealing television satellite dishes when owners left houses to take shelter elsewhere. In several cases this provoked a vigilante-style response from communities. Zakes, a young man, described the situation:

People were breaking into people's houses at night carrying pangas and guns and would take cellphones and computers. Even in the stress some people would take your phone, they would tell you to give them your phone. At first, you would think they are playing but they were serious, so you eventually give it up. So, I would say that crime increased... I felt bad because I couldn't sleep at night. I was staying up late to protect my mother and younger brother. So, I probably slept around six in the morning because I must protect my family. (group interview 4 months post-floods)

Not only did the floods affect low-income areas the worst, but one of their consequences was an impact on employment and earnings. Several participants and family breadwinners lost their jobs as their workplaces closed or retrenched staff as a result of the floods, or lost income because their cars or family taxis were damaged. Others had periods off work, for which they were not paid. Those with small enterprises in the community e.g. tuck shops, often could not operate these. All of this was faced at a time when food prices rose, water often had to be bought, possessions replaced and houses repaired. As Thobeka explained:

We eventually had to pay for water, it was said 20-litre cost R30, we were paying R5 for that 5-litre water [before the flood]. We spent two weeks not going to work. After that, ...people lost their jobs, customers are no longer coming for services, and people are saying that they are no longer working, and all the companies were damaged. So, it was so sad. (group interview 4 months post-floods)

However, women with children often had their child support grants provided by the Government to support their families, and some of the women and men received the R350 government basic income grant that was paid during Covid-19 emergencies, and these were not affected by the flooding.

The interviews had many examples of the community pulling

together to assist its members both during and after the floods. The community solidarity clearly played a very important role in mitigating the impact for our participants and their families. One participant, Nokukhanya, described how her family and another neighbour had worked together to rebuild the home of a more severely affected neighbour and then called them to come back and live in it. She explained:

Ohh, the neighbour, they came back after the second floods...It's the other neighbour that we were there with, who helped by buying them corrugated iron and poles, then hired the boys to fix [the flattened shack], then we called them and told them that things are sorted, "you can come back". They were so shocked because they didn't know that there could be a person who has a good heart, who would fix their house for them.

3.3. Gender relations and the floods

In the heat of the moment, work was strongly gendered with many of the women taking control and helping neighbours, shifting furniture, organising teams to hold down roofs and digging ditches and so forth, even if climbing on roofs and actual digging was usually done by men. Women took responsibility for managing the process of securing the home and provision of food and water, in the face of electricity and water cuts. The roles of men, described by women, varied from sleeping, to (sometimes reluctantly) helping with digging trenches to divert water, and assisting neighbours, as well as other men being described as actively participating in flood associated-crime. Just under half of the male participants gave accounts of much more active involvement at home and in helping neighbours. As Sabelo explained:

At home, I'm the boy that does everything, so I climb the roof and must make sure that the tiles stay put. My grandmother is the one that's around most of the time, my mother is usually away at work. My uncle is also usually not around, my brother is also never around, he's always hanging out with his friends. He doesn't pay attention to the house, so they are relying on me because I can't just leave the home in any condition when my grandmother is there. (group interview 8 months post-floods)

Almost all of the participants had a boyfriend or girlfriend at the time of the floods, frequently more than one, and many had a baby-mama or baby-dada (mother or father of their child), which is often a significant relationship even after the end of formal 'dating'. Eight women and two men co-habited with their partners and the rest described being in a range of different circumstances. Some had satisfactory relationships, some were no longer together with their most important previous partner, some were in the process of splitting up but still formally together, and others were in the process of initiating relationships at very early stages. Almost all of the participants interviewed had more than one partner and most of the women knew their partner had other partners. However, when the floods hit, the main focus of all participants' concerns was on the welfare of their families. This was either their natal families, generally those with whom they lived, their children, or in the few cases where couples lived together, their household unit with their children. Some were extremely distressed by not being able to contact family members and partners on the phone.

Contact between partners during the floods was often hard because of cell phone network outages, and not being able to charge phones, however even when cell phones were charged and reception was restored, participants were quite slow to make contact with their partners. Those that did, spoke of making contact only with their main partner, most did not bother to contact their 'sides' [additional partners]:

Sizwe: She [his girlfriend] contacted me and asked if I was okay, and I told her that I'm alright and she said she also alright.

I: She contacted you first?

Sizwe: I was worried about my aunt, you see. Anyway girlfriends are a second option to me, I didn't care honestly. (group interview 8 months post-floods)

One man said his girlfriend wanted to come to him, but he discouraged her because he didn't want the responsibility of having to protect her.

In one of the group interviews with younger men, the participants shared a laugh about how they really suffered after the floods as they ended up not having sex for a week. Indeed, one of the men indicated that his main concern, in respect of seeing his girlfriend after the floods, was to enable him to have sex. One of the women spoke of keenly wanting to meet her partner to stop anyone else having sex with him.

Other men and women were very concerned about the well-being of their partners, family and children. They had messaged each other repeatedly and checked that they were alright. For example, one man described communicating constantly with his girlfriend by phone as they both stayed in their respective homes listening to the rain. Men and women with children were most concerned about their children.

For the most flood-affected participants, a major preoccupation was protection and retrieval of their assets. Women particularly spoke of their clothing and that of their children, as well as food and blankets. Much of these needed to be washed by the women to remove the accumulated mud. Two female participants were particularly annoyed with their male partners', as they perceived it, sole preoccupation with their music players, rather than concern about clothing. Indeed eight months later Brenda's partner had replaced his water-damaged music player, but not her clothes, all of which were lost, or the other water-damaged household items.

Most women participants who cohabited with their boyfriends received very little, or no, assistance with the main domestic work at home, which had become much harder after the floods with the scarcity of water and electricity and the huge need for washing (by hand) and drying clothes and household items. Several of the women expressed frustration at what they perceived to be the laziness of men, as Thomeka, whose children's father stayed about 5 min away, explained:

Interviewer: Okay, so who was helping you, you said it was granny and grandpa, and you said you were taking water out of the house, who was helping or it was just you?

Thomeka: It was me and the [children's paternal] granny only. The grandpa is lazy. Baby daddy did not come through, you see that one, we eventually saw him when we had even forgotten that there had been rains. If I had died, he would only hear when it is time for burial. (group interview 4 months post-floods)

One participant who was pregnant spoke of how her partner tried to help her somewhat but did not provide enough assistance or the right type of help:

You cannot expect that I will do the laundry while bending down, why is he not taking me to the river, or where there is plenty water... and I have to cook for kids, and I have to cook outside on wood fire, you see. He really helped, but I was really not satisfied. (group interview 4 months post-floods)

Many of the women interviewed had boyfriends who had been violent previously, and in these cases, all the women had experienced severe intimate partner violence for years before the floods. They described how they stayed in the relationships due to poverty, having children, and, in some cases, love for their partner. For some, the experience of the floods improved their relationships, but for others, relationships became worse, compounded by the men's loss of jobs and mental well-being. However, none of the women spoke of IPV starting for the first time after the floods. Crystal was living with her previously abusive boyfriend when the floods occurred and she described how the experience of coping in the floods together, and helping friends and neighbours, had strengthened their relationship, as well as her

perception of her own strength, much as she also worried about further flooding. She explained:

I think we are getting along much better, the floods made a lot of damage, so he keeps saying that we need to fix this and that. The floods didn't do too much damage in our house, but they created trenches in our yard. So I think the experience of floods made us closer ... he has become a bit serious about life, he wants to do the right things, he wants to renovate his home, and he wants our relationship to be fine. (Crystal, indepth interview 8 months post-floods)

They were in a stronger position than some couples as her partner, Mthoko, worked and had building skills, and so they had a few more resources. She described him as “a person that I see a future with” and explained her new feelings of strength through the experience of being tested by the floods and implied that the floods tested Mthoko's masculine prowess and he came out strongly as a supporter and protector of her and her child.

I am strong! I was able to face those floods, we ensured that nothing was damaged in our house, and Mthoko was very supportive. I didn't have much to do besides protecting the child, while he was protecting the two of us (Crystal, indepth interview 8 months post-floods)

In contrast, Brenda described how her relationship had deteriorated. It was impacted by her boyfriend losing his job due to the floods, their home and possessions being very badly damaged and them having to move in with friends and share a bed with another person. He became more suspicious and jealous of her, and more controlling, and would pick fights and be physically violent towards her, as well as shouting at their child. She explained:

Our relationship right now is not alright, things became worse after the floods, so now I can't even tell you what is happening between us, we are always arguing/fighting. This is because of his stupid question where he wants to know what I do during the day and everything else. Now that there is a child, he would come back and shout at the child (Brenda, interviewed at 8 months)

The floods had impacted most important aspects of his expression of masculinity including his ability to provide, for them to live independently, and their sex life. She described him responding under this pressure by becoming extremely controlling, jealous and irrational. He repeatedly pressed her to agree for them to move back to the former home, even though it was still damaged and unfit for habitation eight months after the floods. She expressed her frustration and eight months later had planned her exit from the relationship, noting that his response contrasted with her own feelings of being made stronger by being tested in the floods:

From the beginning of the floods, he can just be happy for a week and then he is bitter again, and I don't know what went wrong to make him change. When he is angry I can see that he can hurt me, he can quickly be fine again... I don't want to stay with him any more. Now I see myself as a strong woman.

I can say that I have been strong, it is not easy to be faced with such a situation in life, something completely unexpected. I can say that it has made me strong, I realized that it is not advisable to look at life in one view, but there will be situations that will force one to toughen up. I am strong... I managed to survive. (Brenda, interview 8 months post-floods)

3.4. Resilience

Like Brenda, many of the participants spoke of the floods as having a broader impact on their self-appraisal and expressed a determination to exercise agency in shaping themselves a more positive future. Several of the women spoke of seeing themselves as ‘strong’ after the experience. As Florence explained:

Now I see myself as a strong woman. I am strong now, I don't think about negative things anymore, I have a life to live, there is no time for games. There is no space or time to relax, I need to do things quickly, floods might come again and take me without accomplishing anything in life. Ay no! (Brenda, iinterview 8 months post-floods)

Similar sentiments were also expressed by men:

The floods taught me that I need to get the odd job. At home we support each other, but we need to try to move away from this place and stuff to areas like the CBDs that don't have the same problems as this place. (Msenti) (group interview 8 months post-floods)

The floods opened my mind and made me realize that I need to work hard to get my family out of the ghetto. You see in the end I'm the first born, I must take them out of the ghetto. So, it opened my mind that I need to be more mature and take things more seriously and try to get them out while there's still time. I think that's how it has changed my life. (Thabo) (group interview 8 months post-floods)

4. Discussion

The floods had a hugely distressing impact on women and men participants, and notably came after the terrifying unrest and looting of July 2021, and the economic stress of Covid-19 lockdown and loss of loved ones. The observation that communities such as these could be faced by repeated disasters has been made previously (Hernandez, 2022), and clearly flows from the structural vulnerability of poor, Black African communities in South Africa which still face the legacies of apartheid. The impact on neighbourhoods and communities was considerable, with enormous damage to housing, infrastructure, income and loss of life. Participants' families and homes experienced more varied impact. Some was very severe, including deaths, witnessed personally, and through social media, but more often the damage was limited. Nonetheless, participants faced considerable difficulties after the acute problem with flooding due to the disruption of water, electricity and often food supplies. Responses to the floods, and the flood-impact were shaped by participants' prior experiences of very heavy rain, as well as the circumstances of their home at the time, and their gendered positions within their homes and families. A key observation is that the flood impact was experienced along the lines of prevailing gender norms, rather than gender norms being altered by the floods. However, the experiences were still perceived as emboldening for women, as many described the challenge of survival in the context of floods as providing a chance to demonstrate their strength and fortitude. For women, standing strong was not itself contrary to gender norms, but none the less empowering (Shai, 2018) and some women used their new strength to free themselves of violent partners.

Although the 2022 floods were remarkable for their destructive impact and associated loss of life, flooding of homes was not new to many participants. The periodic cyclonic-associated rainfall, coupled with unplanned housing construction on the side of very steep hills, has resulted in many parts of eThekweni being intermittently flooded. Several participants described having learned a routine of digging ditches for water to pass round homes, climbing on roofs to protect them or effect emergency repairs, and drying off their mattresses and belongings afterwards. It was also not equally experienced. Even though the whole area was rain affected, not all participants had flooding at home, and for some the immediate impact was limited and most distress came from observing what was happening around them and following social media. Flood impact may have been mitigated by the fact they occurred in a limited episode of heavy rain falling at the end of the annual rainy season and although there were also very heavy rains for a few days in May, there was otherwise little or no rain for several months after the floods occurred, which provided an opportunity for repair and gradual recovery within the affected communities.

The impact of the floods was mediated by poverty, gendered norms,

and household resilience, as well as by chance or fortune. Within this area of very low income housing, those who were better off financially had much more resilience, primarily because they had more robust homes, and could afford repairs or to replace lost or broken items, whilst those who were most poor were hit hardest. Several participants described loss of their neighbours' homes and loss of life, perceiving that they had simply been more fortunate than others. They were well aware it could have been them and might be in the next flood. Indeed, the interviews show that many of those living in secure structures had very little impact from the heavy rain that was causing flooding around them, at most the inconvenience of leaking roofs, roads being damaged, shops and schools being closed, and electricity and water supplies interrupted. Those living in shacks were very much more adversely affected, and some areas, more than others. Further in the aftermath of the floods, some of the participants had severely struggled with access to food. Many received food handouts and knew of them being given, but not all who needed food received handouts, and some were perceived to have benefitted more than others, irrespective of need.

Community connectedness was a recurring theme in the interviews, with strong evidence of communities pulling together to assist those in need, at the moment of crisis, and providing shelter when homes were damaged. This is in keeping with the observations of Gary Webb, that panic and community breakdown rarely occur in disasters (Webb, 2007). Within communities, women often bore the brunt of the immediate response to the floods as often men were not around. South African households are very often female headed and so frequently there are no adult men at home, or women described those present as not helping. However, many of the building and digging tasks were undertaken by men and male participants spoke of helping to move items or effect repairs when this was needed. The floods highlighted a gendered tension. Women spoke of springing into action to save their possessions, family and home, and some of them expressed frustration at men not spontaneously assisting them, whereas men more often waited to be asked to help, which reflected a somewhat marginal position of young men within many of the female-headed homes. After the rain women had the predominant responsibilities for cleaning up, getting water and fuel for cooking, organising food and contacting family, all of which were serious challenges. Men provided some assistance, but women often perceived it to be slow and late, which could relate to an underlying and ongoing tension between the genders especially in very poor communities. The ongoing disruptions to daily life after the floods seemed to impact younger heterosexual partnerships by deepening tensions and consolidating dissatisfaction in these intimate partnerships, however only one of our participants described the consequences as being expressed violently.

Most of the participants lived with their natal family and so their orientation in the first instance was towards those family members and assisting in securing the natal home. The exception was the few women and men who were cohabiting. They all had children and had to address their needs as well as their own. Many participants struggled financially to meet daily basic needs and to rebuild their homes, however they were generally supported in this by their wider families, which were a huge source of strength, social support and contributed to their resilience, as has been described in other contexts (Xu et al., 2023). Women often benefit from money provided to them by male partners, but contributions from extended families were generally much more important, not least because male partner contributions, even for child support, were often unreliable. Nonetheless, many mothers received support from their child's father's families, even after they separated from the father, and many of the children lived with their father's family. The economic impact of floods was mitigated for some by receipt of social grants, which at the time of the floods included the R350 (US\$20) a month basic income grant paid, as well as the child support grant. This was particularly important as many of the participants, and their family, who worked lost their jobs due to the floods.

Although the interviews showed widespread distress caused by the

floods, supported by the quantitative data available for the women participants (not shown here), there was no evidence of enhanced experience of mental disorders, such as PTSD or depression. This is very similar to the impact of COVID-19 on mental health (Sun et al., 2023; Pirkis et al., 2022). This has major implications for planning for relief in the aftermath of flooding, as whilst there was widespread distress and anxiety about future rains, general mental health interventions offered in the community were welcomed, but enhanced mental health care (treatment) did not appear to be needed for our research participants.

A more striking feature of the interviews was the strength and resilience displayed by many of the participants, both the women and men. They portrayed themselves as having emerged from the floods with a renewed determination to uplift households from poverty and get jobs, move from riskier locations, and study to advance themselves. They frequently also described enhanced community cohesion. Where women were in violent relationships, they mostly expressed a determination to leave, when the opportunity would become available to do so. This type of resilience is not often discussed in the academic literature on gender and climate disasters, but it has been discussed in other literature, for example in reports of the aftermath of Hurricane Maria, which hit Dominica in 2017 (Gibbens, 2019).

Several of the women participants were in relationships where they had been subjected to severe IPV, with controlling behaviour and physical and sexual violence. However, most did not describe this worsening due to the floods and their aftermath. Where it did, and the worsening of violence was described as a response to the loss of key elements of successful masculinity and the associated backlash against women partners. Thus male partner job loss, impacted men's ability to occupy a male provider position, and this was exacerbated by the dependency, and weakened gendered positionality, of having to seek shelter after damage to their home.

This experience of violence, following low of access to the cornerstones of successful masculinity, was not explicitly captured in the elaborate model of flood impact described by Thurston et al. (2021). Nor was the experience of resilience. Capturing pathways to resilience is incredibly important in understanding the impact of adversity and provides very valuable insights into how the most long lasting consequences can be prevented (Lee et al., 2014). In other respects, the Thurston et al. model had limited relevance for the context of the 2022 eThekweni floods. In respect of the first pathway, 'stressors trigger VAWG', the floods caused stress, worry and sadness, but this did not play out as envisaged in the model, perhaps because in impoverished, marginalised communities, daily life is constantly shaped by experiences of mental distress and the degree of resilience is substantial. There was loss of livelihood and damage to housing, but it was the gendered loss of male livelihood that was more impactful on violence. The second path, 'increase in enabling environments for VAWG', did not fit the data because policing in South Africa, especially in informal settlements, is not very evident anyway and there is limited evidence of its role in deterring violence against women. One woman described having gone to the police after being badly beaten by her partner, but he was not arrested and so she did not accomplish anything. There has been discussion in papers from other settings of a breakdown in social fabric following climate disasters (Aiolain, 2011), but this was not seen in our setting. There may also have been the additional impact of community solidarity that developed as a result of everyone being impacted in some way.

In respect of the third pathway, 'exacerbation of underlying drivers of VAWG', we did not see evidence of gender roles being changed by the flooding, and it was not loss of power and status of women that was seen to drive further violence, but loss of power and status of men, which is not mentioned by Thurston et al. (2021). Most notably responses of women and men to the flood experiences were shaped by existing gender norms and roles, and to that extent these were replicated and reinforced within the emergency context. This observation was not dissimilar to that of Nguyen and Rydstom, in reflections on climate disasters in the

Philippines and Viet Nam (Nguyen and Rydstrom, 2018). Further, in the moment of crisis many women described drawing on their own strengths and found the experience of this empowering.

Our research suggests that in this South African context, the model of Thurston et al. would need to be considerably simplified with increased emphasis on gender identities impacted by flooding, particularly masculinities. To better understand the impact of disasters on VAW, future research should seek to distinguish meaningful change in gender relations and practices within affected families and communities after a natural disaster, from exacerbation, or even documentation in research, of existing norms and practices. In this paper we have sought to look for evidence of change, and this has been made easier by the research being conducted in communities in which we have worked for about 15 years (Gibbs et al., 2014; Gibbs et al., 2020). We are aware too, that Thurston's model may fit less well in the South African setting as women are somewhat more empowered in South Africa than in other sub-Saharan African countries and social relations differ in that women often marry late or do not marry and live in their natal homes, or with friends or alone, until they marry, and the child support grants provide a vital community safety net. Thus, in many respects they are less dependent on male partners, although they often adopt subordinate relationship roles. However, the community in eThekweni was relatively conservative in respect of gender norms and many participants and their partners came from rural backgrounds, so it seems more likely that the limited focus on men and masculinities in the model would be a more widespread limitation.

4.1. Strengths and limitations

This study is an unusual example of longitudinal qualitative research on VAW conducted in circumstances of climate disaster. However, participants were a small convenience sample, recruited from eight low-income housing areas in eThekweni and so caution is needed in generalising from their experiences. The narrative group interviews and in-depth interviews with women were the third and fourth interviews conducted with the same women over the year, and we anticipate that this made them more open when describing and discussing their lives and the flood impact. The men were not recruited pre-floods, were fewer, and were only recruited for the purpose of the three group discussions. They were mostly younger than the women, and there may have been a pro-social bias among men as those in two of the groups were previously known to Project Empower. The methodology did not allow for a quantitative assessment of IPV or change in exposure and we acknowledge that not all participants were equally flood affected, however, the interviews provided more depth of insight into their lives and dynamics in the communities around the time of the floods. Ultimately interviews just provide a window on participants' lives and it is not possible without more extensive knowledge of participants to know what was and was not included in the accounts.

4.2. Conclusions

The 2022 floods had a huge impact on low-income communities in eThekweni, with very substantial loss of life. This research was inevitably conducted among survivors of the flooding, who were still experiencing considerable distress when discussing the episode at the narrative group interviews four months later and rebuilding of damaged homes was still underway for some participants eight months after the flooding. The impact of the flooding was very clearly felt the hardest by the poorest in the community, particularly those living in shacks. The aftermath of the floods was often very prolonged, with disruptions in water supply, electricity and longer-term impact on local employment. However, participants showed that they were able to demonstrate considerable resilience, in the face of this adversity. Pillars of this were the extended family networks and the child support grants, which provided an economic buffer for many. Participants also described how the

experience of coping in the floods had made them understand better their own inner strengths and had strengthened their resolve to uplift their families. Our findings suggest that models of impact of natural disasters on experience of violence against women need modification for the South African scenario to emphasise the impact of natural disaster on trappings of enactment of masculinity.

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CRediT authorship contribution statement

R. Jewkes: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft. **A. Gibbs:** Conceptualization, Methodology, Writing – review & editing. **S. Mkhwanazi:** Investigation, Supervision, Writing – review & editing. **A. Zembe:** Investigation, Writing – review & editing. **Z. Khoza:** Investigation, Writing – review & editing. **N. Mnandi:** Investigation, Writing – review & editing. **L. Washington:** Investigation, Writing – review & editing. **S. Khaula:** Investigation, Writing – review & editing. **S. Gigaba:** Writing – review & editing. **J. Nöthling:** Investigation, Writing – review & editing. **N. Abrahams:** Conceptualization, Methodology, Funding acquisition, Writing – review & editing. **S. Willan:** Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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