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A description of poverty-related stressors: A qualitative study in Ghana, Malawi, and Tanzania

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Abstract

Introduction Poverty is a key social determinant of population health and stress is a mechanism that links poverty and poor health. Stress and stressful events largely depend on context and culture. The current investigation explored stress among young people within poor agrarian communities in three sub-Saharan African countries: Ghana, Malawi, and Tanzania.

Methods Eighty-one in-depth interviews were stratified by age (adolescents and young adults) and sex, to provide broad community perspectives on defining chronic stressors, stressful events, and their consequences. Thematic analysis was used to organize the qualitative data.

Results Results indicated that stressors can be divided into poverty-related stressors, and non-poverty related stressors. Poverty-related stressors led to additional stressors including poor education, safety concerns, and poor health. Non-poverty related stressors exacerbated the impact of poverty-related stressors on health and well-being. Key coping behaviors, both positive and negative, were identified. A model emerged that provides a contextualized view of stress and coping within these contexts.

Conclusion The salience of poverty-related stressors was reflected in respondents' descriptions, suggesting that stress should be considered in understanding pathways between poverty alleviation programs and health and general well-being, and that adequate measures of stress may need to be further contextualized and adapted to these settings.

Strengths and limitations of this study

- The current study provides contextualized and detailed description of stress on populations in three poverty-affected sub-Saharan African contexts.
- Field work was conducted with support of local community leaders and experienced field-based researchers in the local context
- Results highlight specific stressors that are and are not likely to be affected by cash transfer interventions
- The study was unable to differentiate between chronic and short-term stressors and findings might not generalize to all ages and communities affected by poverty in sub-Saharan African countries

Poverty is a key social determinant of population health.[1] Understanding the impact of poverty and poverty-related stressors is an important public health priority, and critical to the sustainable development goals agenda. In low- and middle-income countries (LMIC), stress is linked to noncommunicable diseases including poorer mental health and diabetes,[2] and communicable diseases, including sexually transmitted infection and HIV.[3] At present, this literature relies on broad and nonspecific measurement of stress (e.g., perceived stress), and follows largely from theories developed in high-income country contexts. The current study describes the key stressors in three sub-Saharan countries, to sharpen the measurement of stress in these and similar contexts.

A stressor is an event or shock that evokes distress. Stressors are delineated between acute (events that are time-limited, with clear onset/offset) and chronic (events that are less time-limited, and more open ended) events.[4] Chronic stressors in particular contribute to poor physical health. Biological evidence suggests that chronic stress wears down bodily systems and leads to deterioration and decline.[5, 6] For children, neurocognitive development can be delayed or worsened.[7] Within LMIC, chronic poverty and low socioeconomic status are associated with higher levels of stress and poorer mental health.[8]

Communities cope with stressors by engaging in culturally meaningful strategies, to achieve goals and outcomes that are consonant with cultural values and norms. What constitutes a stressor and how it is experienced is a function of context and culture.[9] The cultural context largely influences the types of stressors encountered, the degree to which the stressors is associated with distress, the coping strategies that are selected, and different mechanisms available within the culture to cope (e.g., social support). Some coping strategies may lead to additional disease burden. For example, poverty can lead to sexual risk-taking behaviors in

service of resource acquisition. Studies demonstrate that lack of food, poor housing, and healthcare is associated with riskier sex, including partner concurrency, condomless sex, and transactional sex.[10, 11] These behaviors lead to increased risk of sexually transmitted infection and HIV.[3]

Limited qualitative inquiries have attempted to define stress and stressors in LMIC. Studies designed to rapidly assess important community-defined problems within vulnerable populations (e.g., conflict affected) within LMIC suggest that key stressors involve economic conditions and social relationships [e.g., 12, 13]. Fewer studies were conducted within rural agrarian settings in Sub-Saharan African countries. However, some studies set in these contexts show that poor education, healthcare, and water and food scarcity are commonly reported.[14, 15] Evidence also shows that food insecurity is a chronic stressor in the region and is closely linked to poor mental health.[16-18] Research is needed to further contextualize stress within these communities.

The purpose of the current qualitative study was twofold. First, we aimed to investigate the intersection of poverty and chronic stress in order to identify key stressors associated with poverty. Second, we aimed to identify coping strategies used within this context to deal with these stressors. The study focused specifically on adolescents and young adults, i.e. the age-range during which many mental health problems first manifest [19] and may affect transitions to adulthood.

We chose to investigate these questions within poor, agrarian communities in three African countries: Ghana, Malawi, and Tanzania. Each of these communities experience chronic poverty and have national large-scale cash transfer programmes aimed at poverty alleviation.[20, 21] This makes them ideal settings to gain insights into how communities conceptualize stress,

which stressors are most salient within this context, and which types of stressors are likely to be affected through poverty alleviation efforts.

Materials and methods

Data were collected using in-depth interviews by local teams skilled in qualitative data collection. Data collection took place in May, 2017 in Ghana, January, 2017 in Malawi, and November, 2016 in Tanzania. These teams came from REPOA in Tanzania, The Centre for Social Research at the University of Malawi, and Navrongo Health Research Centre in Ghana. Training and piloting for the current study took place over 4 days in each country (two days for training and one day each for pilot and debriefing) by UNICEF Innocenti Office of Research technical staff (JdH, AP, LP). Trainings included a study overview, a refresher on qualitative methods and research ethics, discussions on each question in the interview guide, consent/assent processes, and role-playing. Modifications to help with the interview flow were made based on interviewer feedback. Interview guides were translated into the local languages (Dagbani and Gurune in Ghana, Chichewa in Malawi, and Swahili in Tanzania).

An interview guide was developed that asked the following questions:

Please name all of the various events (difficulties, stressors) that occur in people's lives in your community. Please focus on major or important events.

Please name all of the various challenges (difficulties, stressors) that occur in people's lives in your community. Please focus on everyday challenges.

Please name all of the problems related to poverty that people in your community experience.

How do people deal with these most important challenges?

For each event that was named, follow-up questions were asked about consequent behaviors, thoughts, emotions, health, and coping mechanisms.

Participants

Participants were purposively sampled to ensure representation of stressors across sex and age strata (adolescent/adult) within each village. In Malawi, 20 in-depth interviews were conducted in Salima district from the Mkhwidzi Group Village Head in the Ndindi Traditional Authority. In Tanzania, 40 in-depth interviews were conducted in two rural villages of Kisarawe and Morogoro districts. In Ghana, 21 in-depth interviews were conducted in the Northern and Upper East regions. All interviews took place in locations that protected participant privacy and increased the participant comfort in answering questions. See Table 1, for an overview of age and sex strata by country.

Data Analysis

Data were analyzed with NVivo 11 Plus [22] using thematic analysis.[23] Analysis began with a process of immersion where each author read several transcripts from the first set of data and noted initial thematic codes together. The rest of the analysis was conducted by the first and second authors (BJH, MRG), with regular discussions with the other authors for their comments and suggestions. We generated initial codes by coding text that discussed stressors and coping strategies. For each code, we collated relevant text examples. We then collated codes into themes, and when relevant, subthemes. We reviewed the themes vis-à-vis the coded extracts. This step involved refining existing themes, creating new themes, and reviewing extracts to form coherent patterns until we reached a fitting thematic map of our data. Lastly, in our synthesis of the thematic analysis, we provided ample textual extracts balanced by themes, country, and strata.

Ethical approval for the study was obtained from COSTECH in Tanzania, University of Malawi ethics committee in Malawi and the ethics committee at Navrongo Health Research Centre in Ghana.

Patient and Public Involvement statement

Patients were not involved in this research.

Results

The data showed participants experience poverty-related stressors that affect their health, education, and security and safety. Non-poverty-related stressors aggravate the effects of poverty-related stressors. Table 2 shows the frequency of reported stressors by country and strata. Both poverty- and non-poverty-related stressors lead to positive and negative coping responses, which in turn impact the stressors they experience.

Poverty-related Stressors

The main source of stress is poverty-related. All 81 participants cited at least one stressor of this type. We grouped poverty-related stressors into two broad themes: lack of basic necessities and issues related to income-generation.

Lack of basic necessities. Poverty results in lack of sufficient nutritious food and clean water, illustrated by one participant:

> Malawian, 16-year old female: "When one is hungry, you don't find strength. It is food that helps you. Sometimes, to fetch water you cannot manage, even to go to the farm, you can't manage, so food is important in one's life."

Other necessities included school-related expenses; clothing and shoes; and housing with toilets, laundry supplies, suitable bedrooms; and, farming necessities including seed, fertilizers, animals, tractors, and grinding mills. Participants also reported inadequate public transportation; road infrastructure, markets, and police stations, along with access to electricity. Stress induced by these difficulties affected interpersonal relationships.

Participants lack adequate medical care and resources to acquire needed medications. Hospitals are inaccessible since they are far from their homes, as reported by one participant:

> Malawian, 21-year old male: "Diseases, since they sometimes come in the middle of the night, we wait till morning to look for transportation."

Income generation. Participants talked about income generation issues, as many have physically-demanding jobs, such as farming, wood-cutting, and small-scale businesses, that result in low and unstable revenues. Jobs are also scarce. Some girls and women from rural areas of Ghana move to urban centers to work as porters in markets (i.e., kayayo). Additionally, some community members in Malawi engage in short-term or casual jobs, called ganyu. These jobs include clearing other people's land, carrying goods, and mopping floors, for which individuals often receive in-kind compensation such as a plate of food.

Poverty-related Stressors Lead to Other Stressors

Poverty-related stressors produce other stressors that impact on health, educational opportunities, and security and safety.

Health. We divided health into three areas: Mental, physical, and relational.

Mental health. The most common reactions are feeling depressed and ashamed, which leads to withdrawal and isolation.

> Ghanaian, 16-year old female: "Sometimes I feel like crying and I will be thinking … I will be thinking about how my parents are not able to get my needs for me and tears will be dropping from my eyes."

Others mentioned anxiety, worry, and fear about meeting basic needs:

> Ghanaian, 24-year old male: "When we farm, the yields are not always enough and we do not also have the money. And now that we do not have it, what will we do?"

> Malawian, 17-year old male: "You can get thin because of thinking too much … You think about the future and wonder if you will manage alright."

Some participants reported impacts on functioning.

> Tanzanian, 17-year old male: "Work performance will go down and the possibility of underperforming that work increases because when you think of many challenges you're facing like loss of parents, the motivation to work hard will not be there again."

Physical health. Poverty-related stressors lead to physical illnesses. The signs of stress

manifest by loss of weight, looking unclean, not washing, and appearing older. Poor infrastructure and lack of clean water lead to gastrointestinal diseases, and vector-borne disease. Malnutrition and stunted growth also occur due to lack of nourishment. High blood pressure also occurs, which some participants attribute to emotional and cognitive health problems. Accidents that lead to injuries are common, such as riding feeble carts to fetch water and experiencing motor accidents when driving *bodaboda* (motorcycle taxis common in East Africa) or bicycles. The absence of safe sources of water could lead to children falling into wells.

Relational health. Interpersonal conflicts are triggered by poverty related stress:

> Tanzanian, 20-year old male: "Sometimes you can come back home very angry because you have not succeeded to get money, you can quarrel and fight with your wife because you are very angry and don't like to talk to anybody including your wife."

Participants prioritize their personal and familial needs, but they also report neglecting peers and their broader community; living in impoverished communities translates to fewer chances of receiving help from people who are already having a hard time meeting individual needs. Poverty-related stressors also affect social engagement.

Education-related stressors. Students find difficulty attending school and studying due to lack of supplies and the long distance to school, and school disruption due work demands.

Security, safety and violence stressors. Participants mentioned physical assault, theft, and intimate partner violence. Travelling long distances to get water makes people more vulnerable to sexual assault. Women, in particular, are at risk of both physical and sexual assault:

> Tanzanian, 16-year old female: "There is a man who hides and waits for girls who are going there to fetch water to rape them. When he sees a girl coming, he will call her and if she refuses, he will use cutlass to attack the girl…. he attacked one girl and cut her fingers."

Non-poverty-related Stressors Exacerbate the effects of Poverty-related Stressors

Non-poverty-related stressors further exacerbate the pernicious effects of poverty-related stressors. Non-poverty-related stressors include environmental stressors, untimed pregnancy, and death, especially of a parent or guardian. Similar to poverty-related stressors, these lead to security and safety, health, and education-related stressors.

Environmental stressors. There are three types of environmental stressors. First are extreme weather conditions like drought and flooding. Second are land-related problems, such as having land of poor quality. Third are animal-related losses. Man-made losses occur when crop or bush burning spreads before harvest. These stressors lead to poverty-related problems as they affect livelihoods and lead to food and water shortage and an increase in community crime.

Untimed pregnancy. Schooling disruptions, difficulty finding employment, and additional expenses related to childcare as associated with untimed pregnancy.

> Ghanaian, 19-year old, female: "When they are going to school and they cannot get money, and they get a boy who can give them money, they start dating the guy and eventually get pregnant. The problem is, if their parents had the money to take care of them, they wouldn't have followed the guy in the first place."

Some women experience relational health problems due to arguments or abandonment by partners, family members, or peers, and they are targets of gossip in their community. Untimed pregnancy is also associated with mental health issues.

Death of a parent or guardian. Death of a parent or guardian is associated with physical health problems like weight loss and headaches and school discontinuation.

Coping Responses to Poverty- and Non-poverty-related Stressors

Participants reported engaging in various coping responses, both negative and positive. Poverty limits the repertoire of positive coping responses that can be utilized to alleviate stressors. Poverty is thus experienced not just in terms of lack of resources but also in terms of constraints in the availability or access to potential resources, including coping behaviors.

Negative coping. Risk-taking can occur through stealing in order to gain resources. Risk-taking also manifests through sexual behaviors. Unsafe or transactional sex and partner concurrency exposes women to untimed pregnancy or contracting sexually transmitted infections or HIV. Substance misuse as coping further diminishes finances and the capacity to work, family neglect, and intimate partner violence. It can lead to engagement in transactional sex or stealing to have money to buy drugs or alcohol. Poor social coping may take the form of begging for resources from strangers, classmates, or neighbors. Others abandon their family. Some abandon their partners who then become single parents, whereas children are left with relatives.

Positive coping. Seventy-eight participants reported at least one of five positive coping responses.

First, participants use problem-focused coping, mainly by working hard, starting businesses, or changing jobs. Included here are strategies related to planning for the future, like investing or getting insurance and saving money or crops; going to school or sending children to school; finding other ways to meet needs like helping improve infrastructure in their neighborhood and finding new sources of employment; and caring for their health, like seeking health care and minimizing chances of sexual health problems by having one partner and learning about safe sex, family planning, and HIV.

Second, participants use social coping by providing help and advice to others, seeking help or opening up to others, improving or amending relationships, and paying off debts.

Third, participants utilize spiritual coping by turning to God. Fourth, participants engage in preventive coping by avoiding problematic people, being cautious in public places, driving safely, and avoiding risky behaviors. Lastly, participants engage in emotion-focused coping, by having a positive attitude, being persistent in rising above their problems, and tolerating the

issues they experience.

Discussion

In this qualitative study, we contextualized key stressors, their consequences, and coping behaviors within poor Sub-Saharan African agrarian communities in Ghana, Malawi, and Tanzania. The model that emerged from this study (depicted in Figure 1) involved two main sources of stress. The first key stressor highlighted across settings was poverty, characterized by lacking basic needs and difficulty in income generation. This finding, ubiquitous across interviews, highlighted the degree to which economic conditions predominate the local conceptualization of stress. The second source of stress was non-poverty related (e.g., droughts). Coping processes were described as bounded within the economic and resource constraints in the communities. Poverty restricts the coping repertoires available within the community.

Importantly, the current model suggests a feedback loop whereby poor coping leads to further stressors, which in turn can be exacerbated by continued poor coping. This is similar to the loss spiral concept in conservation of resources theory,[24] which states that losses to economic resources and other resources can beget further losses. With regard to mental health in particular, previous reviews document the association between mental ill health and poverty.[8] In this study, poverty was associated with losses in health status, along with educational and economic advancement opportunity. Non-poverty stressors modify the effects of poverty and poverty-related stressors. Stress related to poor weather conditions, poor education, and safety and security, all intensify the impact of economic challenges such that there is a multiplicative effect of these other stressors on economic related stressors.

Intimate partner violence was a key finding linked to poverty-related stress, and this is supported by national statistics. For example, in Ghana, 41 percent of women experience

intimate partner violence in their lifetime, and rates were even higher (64 percent) among women in rural, poor households in northern Ghana, similar to the area where are current sample comes from.[25, 26] Further, in Malawi and Tanzania, 42 and 50 percent of ever-married women, respectively, have experienced physical, sexual or emotional intimate partner violence.[27, 28]

Key coping processes were highlighted by participants. Negative coping strategies involved risk-taking behaviors including stealing and transactional sex. These lead to further stressors including sexually transmitted infections (STIs) and unplanned pregnancy, which sets up a continuing cycle of resource depletion, stress, and unsafe health practices. This is supported by previous research linking risky behaviors, STIs, and poverty.[29] Engaging in avoidance coping included using alcohol and other drugs, which in turn led to relational health challenges and GBV. These findings fit within a syndemic conceptualization where substance abuse, violence, and sexually transmitted infections are mutually enhancing and co-occur,[30] driven by poor economic conditions. Findings also highlight how adolescent girls often find themselves uniquely vulnerable to stressors related to the intersection of poverty and gender, including early pregnancy, school drop-out and GBV.

Despite their challenging circumstances, participants also used healthy and positive coping strategies. Problem-focused coping strategies revolved largely around work, contingency planning for crop and other losses, and caring for their health. Social networks were also an important source of coping support, but this resource is bounded by the availability of people who possess the capacity to provide the specific support needed.[31] Poverty drove partner and child abandonment, suggesting that when resources are lacking, familial and kinship network members are seen as a liability for survival.

The current findings have implications for intervention programs within these contexts.

Given the emergence of poverty as a key underlying factor, and linkages between health, stress, and poverty,[8, 32] cash transfer interventions are hypothesized to lead to reductions in stress;[33] however, the empirical evidence is mixed.[33, 34] While a study in Kenya did find that cash transfers reduced self-perceived stress (but not cortisol, a biological marker for stress),[35] Hjelm et al. [33] found that two unconditional cash transfer programs in Zambia were successful at reducing poverty but had no impacts on self-perceived stress.

The current study should be viewed in light of several limitations. First, the study was not able to adequately differentiate between chronic and short-term stressors. All stressors were reported as chronic by study participants. This limits our understanding of how daily hassles interact to produce stress within the community. Second, we relied on a small sample which may not provide generalizable information about their entire village or community. Caution should be exercised when viewing this data as it may present an overly negative portrayal of life within these communities. Third, the age range of our participants may not reflect the breadth of stressors experienced by older community members. Finally, we cannot rule out the possibility of seasonal variation in the salience of stressors experienced in these villages given their agrarian nature. We did ask about stressors throughout the year in order to mitigate this concern.

Our findings suggest that cash transfer and other poverty alleviation programs could reduce mental health and physical health problems, particularly as they relate to those stressors that have direct relationships with poverty. The current study provides evidence of dual direct pathways between stressors and health outcomes. This provides greater specificity for the pathways upon which economic interventions are predicted to be effective. Poverty alleviation programs may also promote resiliency, reducing the need for negative coping strategies in the face of shocks and non-poverty stressors such as droughts and floods.[36] However, despite their

ability to mitigate the impacts of poverty and feedback loops related to coping, these programs are unlikely to affect the occurrence of non-poverty related stressors in the first place. Nor do they always address related structural factors related to poverty, such as lack of access to schools and quality health facilities, which were often mentioned by respondents.

The mixed evidence from cash transfer interventions and the results from our current study suggest the need for new quantitative measures of stress. Most stress studies in LMIC rely on the Perceived Stress Scale, which was validated among a largely white, educated population in the United States and was intended for use among people with at least a junior high education level.[37] Outside this population, this scale may not capture important features of stress. Any new stress scale should differentiate between poverty and non-poverty-related stressors to enable a more nuanced view of the source and type of stressors experienced. Key aspects of income generation, food and water insecurity, relational factors, and exposure to violence would be a specific measurement of stress within agrarian regions of African countries experiencing ongoing poverty.

In summary, we described stressors in rural, agrarian populations in sub-Saharan African and respondents' descriptions of how they experience and cope with these stressors. The salience of poverty-related stressors was reflected in these descriptions, and suggests that stress should be considered in understanding pathways between poverty alleviation programs and health and general well-being, and that adequate measures of stress may need to be further contextualized and adapted to these settings.

Contributorship statement

BJH led the research design, qualitative analysis, and wrote the first draft of the paper. MRG conducted the analysis, wrote the results, and edited the paper for intellectual content. JH led the field data collection, contributed to the analysis, and edited the paper for intellectual content. AP collected data in the field, contributed to the analysis, and edited the paper for intellectual content. LP collected data in the field, contributed to the analysis, and edited the paper for intellectual content. TP, conceptualized the research, supervised the project, contributed to the analysis, and edited the paper for intellectual content, and secured project funding. All authors approved the final paper for publication.

Data sharing statement

No additional data available

Conflicts of interest

The authors have no conflicts to report

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Table 1. Demographic information

Country	Age group	Male (n=41)	Female (n=40)
Tanzania (n=40)	Below 18 years old	n=10 *M* = 16.80, *SD* = 0.63	n=10 *M* = 16.50, *SD* = 0.85
	Above 18 years old	n=10 *M* = 25.00, *SD* = 3.89	n=10 *M* = 21.90, *SD* = 4.31
Malawi (n=20)	Below 18 years old	n=5 *M* = 16.20, *SD* = 1.10	n=5 *M* = 15.80, *SD* = 0.84
	Above 18 years old	n=5 *M* = 20.60, *SD* = 1.14	n=5 *M* = 22.20, *SD* = 3.03
Ghana (n=21)	Below 18 years old	n=6 *M* = 15.67, *SD* = 0.82	n=5 *M* = 16.20, *SD* = 0.84
	Above 18 years old	n=5 *M* = 25.20, *SD* = 3.35	n=5* *M* = 23.00, *SD* = 5.60

*One participant did not know her exact age.

Table 2a. Summary of stressors in Tanzania.

Stressor	Total (n=40)		By sex		By age	
	f	%	Male	Female	Below 18	18 and above
Poverty-related stressors						
Lack of basic necessities	36	90.00	19	17	18	18
Daily necessities	36	90.00	19	17	18	18
Non-daily necessities – Medical care	10	25.00	9	1	4	6
Income generation issues	34	85.00	18	16	16	18
Poverty-related stressors lead to other stressors						
Affect health	36	90.00	18	18	18	18
Affect mental health	24	60.00	13	11	13	11
Affect relational health	28	70.00	14	14	14	14
Affect physical health	24	60.00	16	8	11	13
Affect education	16	40.00	9	7	10	6
Affect security and safety	7	17.50	2	5	5	2
Non-poverty-related stressors						

Environmental stressors	21	52.50	15	6	10	11
Untimely pregnancy	15	37.50	2	13	9	6
Death of a parent or guardian	8	20.00	1	7	5	3

Table 2b. Summary of stressors in Malawi.

Stressor	Total (n=20)		By sex		By age	
	f	%	Male	Female	Below 18	18 and above
Poverty-related stressor						
Lack of basic necessities	19	95.00	9	10	9	10
Daily necessities	19	95.00	9	10	9	10
Non-daily necessities – Medical care	7	35.00	1	6	2	5
Income generation issues	20	100.00	10	10	10	10
Poverty-related stressors lead to other stressors						
Affect health	19	95.00	9	10	9	10
Affect mental health	20	100.00	10	10	10	10
Affect relational health	18	90.00	9	9	9	9
Affect physical health	18	90.00	8	10	8	10
Affect education	11	55.00	4	7	8	3
Affect security and safety	3	15.00	3	0	2	1
Non-poverty-related stressors						

Environmental stressors	17	85.00	8	9	8	9
Untimely pregnancy	2	10.00	1	1	1	1
Death of a parent or guardian	4	20.00	2	2	2	2

Table 2c. Summary of stressors mentioned in Ghana.

Stressor	Total (n=21)		By sex		By age	
	f	%	Male	Female	Below 18	18 and above
Poverty-related stressor						
Lack of basic necessities	21	100.00	11	10	11	10
Daily necessities	21	100.00	11	10	11	10
Non-daily necessities – Medical care	9	42.86	6	3	4	5
Income generation	20	95.24	11	9	10	10
Poverty-related stressors lead to other stressors						
Affect health	21	100.00	11	10	11	10
Affect mental health	21	100.00	11	10	11	10
Affect relational health	17	80.95	9	8	9	8
Affect physical health	19	90.48	11	8	10	9
Affect education	16	76.19	8	8	10	6
Affect security and safety	2	9.52	1	1	2	0
Non-poverty-related stressors						

Environmental stressors	11	52.38	8	3	6	5
Untimely pregnancy	5	23.81	1	4	3	2
Death of a parent or guardian	0	0.00	0	0	0	0

Table 3a. Summary of coping strategies mentioned in Tanzania.

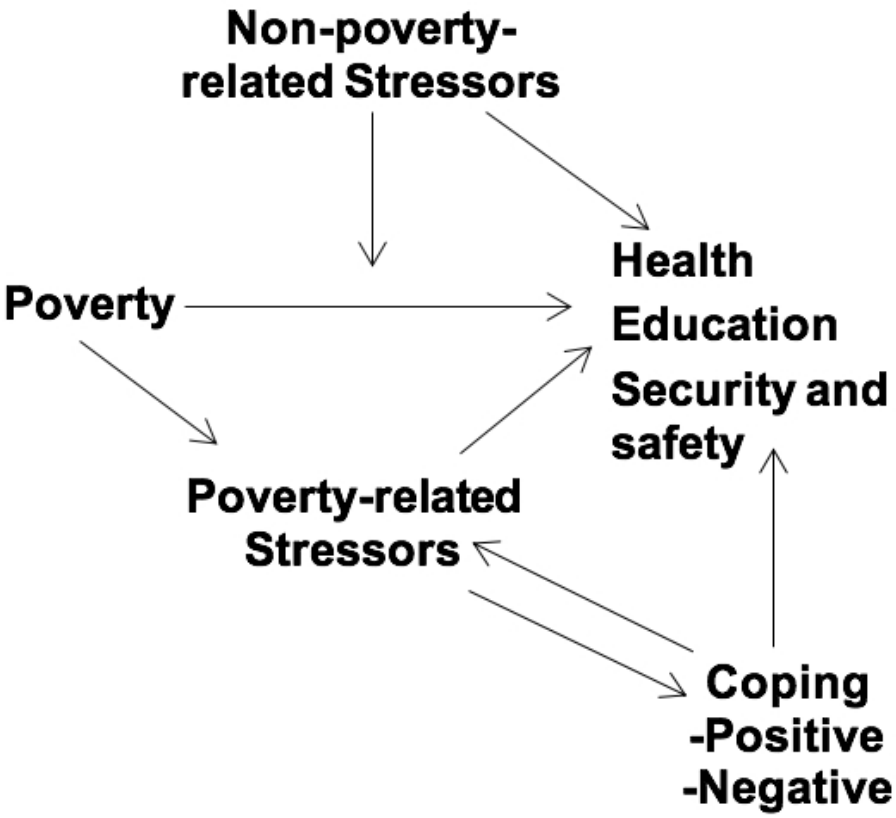
Coping strategy	Total (n=40)		By sex		By age	
	f	%	Male	Female	Below 18	18 and above
Poverty- and non-poverty-related stressors lead to negative coping						
Risk-taking	37	92.50	20	17	19	18
Poor social coping	9	22.50	3	6	5	4
Poverty- and non-poverty-related stressors lead to positive coping						
Problem-focused coping	33	82.50	17	16	16	17
Social coping	30	75.00	12	18	15	15
Spiritual coping	9	22.50	6	3	4	5
Preventive coping	16	40.00	7	9	8	8
Emotion-focused coping	8	20.00	2	6	4	4

Table 3b. Summary of coping strategies mentioned in Malawi.

Coping strategy	Total (n=20)		By sex		By age	
	f	%	Male	Female	Below 18	18 and above
Poverty- and non-poverty-related stressors lead to negative coping						
Risk-taking	11	55.00	7	4	4	7
Poor social coping	8	40.00	4	4	6	2
Poverty- and non-poverty-related stressors lead to positive coping						
Problem-focused coping	19	95.00	9	10	9	10
Social coping	19	95.00	9	10	9	10
Spiritual coping	5	25.00	3	2	3	2
Preventive coping	2	10.00	2	0	0	2
Emotion-focused coping	4	20.00	2	2	2	2

Table 3c. Summary of coping strategies mentioned in Ghana.

Coping strategy	Total (n=21)		By sex		By age	
	f	%	Male	Female	Below 18	18 and above
Poverty- and non-poverty-related stressors lead to negative coping						
Risk-taking	9	42.86	4	5	4	5
Poor social coping	6	28.57	5	1	4	2
Poverty- and non-poverty-related stressors lead to positive coping						
Problem-focused coping	18	85.71	10	8	10	8
Social coping	14	66.67	7	7	8	6
Spiritual coping	7	33.33	5	2	4	3
Preventive coping	0	0.00	0	0	0	0
Emotion-focused coping	1	4.76	1	0	1	0



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Abstract

Introduction Poverty is a key social determinant of population health and stress is a mechanism that links poverty and poor health. Stress and stressful events largely depend on context and culture. The current investigation explored stress among young people within poor agrarian communities in three sub-Saharan African countries: Ghana, Malawi, and Tanzania.

Methods Eighty-one in-depth interviews were stratified by age (adolescents and young adults) and sex, to provide broad community perspectives on defining chronic stressors, stressful events, and their consequences. Thematic analysis was used to organize the qualitative data.

Results Results indicated that stressors can be divided into poverty-related stressors, and non-poverty related stressors. Poverty-related stressors led to additional stressors including poor education, safety concerns, and poor health. Non-poverty related stressors exacerbated the impact of poverty-related stressors on health and well-being. Key coping behaviors, both positive and negative, were identified. A model emerged that provides a contextualized view of stress and coping within these contexts.

Conclusion The salience of poverty-related stressors was reflected in respondents' descriptions, suggesting that stress should be considered in understanding pathways between poverty alleviation programs and health and general well-being, and that adequate measures of stress may need to be further contextualized and adapted to these settings.

Keywords: Poverty; Stress; Coping; Mental Health; Sub-Saharan Africa

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Adolescent and young adult community perspectives on poverty related stressors: A qualitative study in Ghana, Malawi, and Tanzania

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Abstract

Objectives To define key stressors experienced and coping behaviors within poor agrarian communities in Sub-Saharan Africa.

Design Descriptive qualitative study incorporating inductive thematic analysis.

Participants 81 participants stratified by age (adolescents and young adults) and sex

Setting The study was conducted in villages in Ghana, Malawi, and Tanzania.

Results Stressors were thematically grouped into those directly related to poverty and the lack of basic necessities (e.g., food insecurity), and additional stressors (e.g., drought) that worsen poverty-related stress. Impacts on functioning, health and well-being, and key coping behaviors, both positive and negative, were identified. The findings together inform a more nuanced view of stress within these contexts.

Conclusion The salience of poverty-related stressors was reflected in respondents' descriptions, suggesting that stress should be considered in understanding pathways between poverty alleviation programs and health and general well-being, and that adequate measures of stress may need to be further contextualized and adapted to these settings.

Strengths and limitations of this study

- The current study provides contextualized and detailed description of stress on populations in three poverty-affected sub-Saharan African contexts.
- Field work was conducted with support of local community leaders and experienced field-based researchers in the local context
- Results highlight specific stressors that are and are not likely to be affected by cash transfer interventions
- The study was unable to differentiate between chronic and short-term stressors and findings might not generalize to all ages and communities affected by poverty in sub-Saharan African countries

Introduction

Poverty is a key social determinant of population health[1] Understanding the impact of poverty and poverty-related stressors is an important public health priority, and critical to the 2030 Agenda for Sustainable Development. In low- and middle-income countries (LMIC), stress is linked to noncommunicable diseases including poorer mental health and diabetes,[2] and communicable diseases, including sexually transmitted infection and HIV.[3] At present, this literature relies on broad and nonspecific measurement of stress (e.g., perceived stress), and follows largely from theories developed in high-income country contexts. The current study describes key stressors in three sub-Saharan countries, to sharpen the measurement of stress in these and similar contexts.

A stressor is an event or shock that evokes distress. Stressors are either acute (events that are time-limited, with clear onset/offset) or chronic (events that are less time-limited, and more open ended).[4] Chronic stressors in particular contribute to poor physical health. Biological evidence suggests that chronic stress wears down bodily systems and leads to deterioration and decline.[5,6] For children, neurocognitive development can be delayed or worsened.[7] Within LMIC, chronic poverty and low socioeconomic status are associated with higher levels of stress and poorer mental health.[8]

Prevailing stress theories are derived largely from high-income contexts and may not provide the most complete framework to understand stress globally and in non-western LMIC countries in particular. The transactional stress theory defines stress as the experience of a stimulus as threatening and an appraisal of the degree to which this stimulus can be managed within a person's available coping repertoire.[9] This model of stress has been critiqued as it suggests appraisal (rather than objective reality) is central to the stress process. Others have

argued that the possession of resources (e.g., economic, material) determines whether a person can deal effectively with the demands of a stressor. According to the Conservation of Resources Theory, the ability to overcome stressors is predicated on the availability of needed resources that can be mobilized to overcome adverse events.[10] Further, losses and gains to resources are central to how a person experiences stress.

Within LMIC, chronic poverty largely shapes the availability of resources to mobilize, and may set boundaries around adaptive coping processes.[11] Active and problem focused coping strategies are associated with better health outcomes but are conditioned on the ability of a community to actively change aspects of their environment.[12,13] In contrast, avoidant coping, or emotion focused coping, while less likely to alleviate the stressor directly, are often used when more active strategies are not possible. Within communities experiencing chronic poverty, these are often employed when environments cannot be changed.[14,15]

Communities cope with stressors by engaging in culturally meaningful strategies, to achieve goals and outcomes that are consonant with cultural values and norms. What constitutes a stressor and how it is experienced is a function of context and culture.[16] The cultural context largely influences the types of stressors encountered, the degree to which stressors are associated with distress, the coping strategies that are selected, and different mechanisms available within the culture to cope (e.g., social support). Some coping strategies may lead to additional disease burden. For example, poverty can lead to sexual risk-taking behaviors in service of resource acquisition. Studies demonstrate that lack of food, poor housing, and healthcare is associated with riskier sex, including partner concurrency, condomless sex, and transactional sex.[17,18] These behaviors lead to increased risk of sexually transmitted infection and HIV.[3]

Limited qualitative inquiries have attempted to define stress and stressors in LMIC. Studies designed to rapidly assess important community-defined problems within vulnerable populations (e.g., conflict affected) within LMIC suggest that key stressors involve economic conditions and social relationships[19,20] Limited research was conducted within rural agrarian settings in Sub-Saharan African countries. The results from these investigations show that poor education, healthcare, and water and food scarcity as commonly reported.[21,22] Evidence also showed that food insecurity is closely linked to poor mental health.[23-25] Additional studies are needed that focuses on defining stress within LMIC, to inform the measurement of stress within these contexts, since stress is theorized as a critical mediating pathway through which cash transfer interventions are effective.[26] However, previous impact evaluations of cash transfers failed to detect impacts on stress, measured by the Cohen's Stress Scale,[27] suggesting that inadequate conceptualization or measurement of stress could be one factor accounting for this unexpected finding.[26]

We chose to qualitatively investigate descriptions of key stressors within poor, agrarian communities in three African countries: Ghana, Malawi, and Tanzania. Each of these communities experience chronic poverty and have national large-scale cash transfer programmes aimed at poverty alleviation.[28,29] This makes these ideal settings to gain insights into how communities conceptualize stress, which stressors are most salient within this context, and which types of stressors are likely to be affected through poverty alleviation efforts. This descriptive qualitative study focused specifically on adolescents and young adults, which is the age-range during which many mental health problems first manifest[30] and may affect transitions to adulthood. Indeed, in previous impact evaluations, the prevalence of depression in Tanzania was 63% and 47% in Malawi.

These three communities are similar but different enough to aid in developing an understanding of stress that may generalize across multiple contexts. There are several contextual and historical factors about these contexts worth noting. First, the prevalence of girls married by the age of 18 in Ghana, Malawi, and Tanzania was 21%, 42%, and 31%.[31] Second, there are uneven secondary school completion rates, with 70%, 38% and 26% gross secondary school enrolments in Ghana, Malawi and Tanzania according to World Bank 2017 data. Third, all three countries were previously governed by the British. They gained independence in: 1957 Ghana; 1964 Malawi; 1964 Tanzania (merger of Tanganyika and Zanzibar). In 2017, the World Bank ranked Malawi and Tanzania as lower income countries and Ghana as a lower middle-income country. Fourth, each country has large rural population according to the World Bank: 45% Ghana, 83% Malawi, and 67% Tanzania. Fifth, each country has a large informal sector according to the World Bank Enterprise Surveys. In Ghana, Malawi and Tanzania, respectively 69%, 72%, and 73% of firms compete against unregistered or informal firms.

The purpose of the current qualitative study was twofold. First, we aimed to investigate the intersection of poverty and chronic stress in order to identify key stressors associated with poverty. Second, we aimed to identify coping strategies used within this context to deal with these stressors.

Methods

Study design

This study was a descriptive qualitative study utilizing in-depth interviews. In all countries, adults provided informed consent for their own participation and consent for interviews with minors. Minors (<18 years old) provided assent, following standard ethnical procedures. Ethical

approval for the study was obtained from COSTECH in Tanzania, University of Malawi ethics committee in Malawi and the ethics committee at Navrongo Health Research Centre in Ghana.

Participants

The focus of the study was on rural areas in Tanzania, Ghana, and Malawi. Participants were purposively sampled to ensure representation of stressors across sex and age strata (adolescent/adult) within each village. The age range for adolescents was from 15 to 18, and young adults were 18 and 24. In Malawi, 20 in-depth interviews were conducted in Salima district from the Mkhwidzi Group Village Head in the Ndindi Traditional Authority. In Tanzania, 40 in-depth interviews were conducted in two rural villages of Kisarawe and Morogoro districts. In Ghana, 21 in-depth interviews were conducted in the Northern and Upper East regions. Survey firms were asked to select villages that were reasonably representative of the rural population in the country. Within villages, senior village members assisted in recruitment by selecting interviewees by age and sex strata. All interviews took place in locations that protected participant privacy and increased the participant comfort in answering questions. See Table 1, for an overview of age and sex strata by country.

Interviews

Data were collected using in-depth interviews by local teams skilled in qualitative data collection. Data collection took place in May, 2017 in Ghana, January, 2017 in Malawi, and November, 2016 in Tanzania. These teams came from REPOA in Tanzania, The Centre for Social Research at the University of Malawi, and Navrongo Health Research Centre in Ghana. These research teams were not known to community members before the interviews took place. Some participants may have been disinclined to share their information since interviewers were

unfamiliar to them. Interviewers were matched to interviewees by sex to mitigate bias in the interviews.

Training and piloting for the current study took place over 4 days in each country (two days for training and one day each for pilot and debriefing) by UNICEF Innocenti Office of Research technical staff (JdH, AP, LP). Trainings included a study overview, a refresher on qualitative methods and research ethics, discussions on each question in the interview guide, consent/assent processes, and role-playing. Modifications to help with the interview flow were made based on interviewer feedback. Interview guides were translated into the local languages (Dagbani and Gurune in Ghana, Chichewa in Malawi, and Swahili in Tanzania).

An interview guide was developed that asked the following questions:

Please name all of the various events (difficulties, stressors) that occur in people's lives in your community. Please focus on major or important events.

Please name all of the various challenges (difficulties, stressors) that occur in people's lives in your community. Please focus on everyday challenges.

Please name all of the problems related to poverty that people in your community experience.

How do people deal with these most important challenges?

Participants were asked to report about their community rather than personal experiences, to reduce potential the concealment of stressors that may evoke embarrassment or stigma. For each event that was named, follow-up questions were asked about consequent behaviors, thoughts, emotions, and coping mechanisms. These follow-up probes were decided during field training by the interviewers and applied during interviews using local languages. All interviews were recorded and transcribed first into the local language, and then translated once into English.

Qualitative Data Analysis

Data were analyzed with NVivo 11 Plus[32] using inductive qualitative thematic analysis following a six-phase process.[33] We analyzed data from Tanzania first, then created a coding frame. We then analyzed data from Malawi then Ghana using the coding frame. We accommodated new themes by adding new codes into the coding frame. Analysis began with a process of immersion where each author read several transcripts from the first set of data and noted initial thematic codes together. The rest of the analysis was conducted by the first and second authors (BJH, MRG), with regular discussions with the other authors for their comments and suggestions. We generated initial codes by coding text that discussed stressors and coping strategies. For each code, we collated relevant text examples. We then collated codes into themes, and when relevant, subthemes. We reviewed the themes vis-à-vis the coded extracts. This step involved refining existing themes, creating new themes, and reviewing extracts to form coherent patterns until we reached a fitting thematic map of our data. Lastly, in our synthesis of the thematic analysis, we provided ample textual extracts balanced by themes, country, and strata.

Patient and Public Involvement statement

Patients were not involved in this research.

Results

We organize the results in a broad framework encompassing 1) stressors related to poverty and the lack of basic necessities, 2) additional stressors that worsen poverty-related stress, 3) impacts of these stressors on functioning, health, and well-begin, and 4) coping strategies used by community members. Participants report stress related to the lack of basic necessities, which is due to income generation issues and poor community infrastructure and facilities. Additional stressors, including environmental stressors; safety; weak social capital;

untimed pregnancy; and death of a parent or guardian, worsened poverty-related stress. These stressors were linked to difficulties in daily functioning, health, well-being, and education. Coping repertoires were bound due to constraints of poverty, and negative and positive coping behaviors were identified.

Poverty-related stress and the lack of basic necessities

Participants reported lacking basic necessities as key stressors, which is poverty-related. These stressors are presented in Table 2.

The lack of food was a key issue mentioned. One participant said:

> Ghanaian, 17-year old female: "About the food, it is a pity. I will look at my father, think and wish that I have money to buy enough food for us to eat in the house."

Other necessities included school-related expenses (mentioned twice as often by younger participants), clothing and shoes, proper housing, and medical care (mentioned almost twice as often by older participants).

They lack necessities due to limitations in income generation. Many have physically-demanding jobs that result in low and unstable revenues. This is illustrated in this excerpt:

> Tanzanian, 20-year old male: "Farming is like gambling: you can get harvest or not get any. It is a game of chance. You spend a lot of money but end up getting nothing."

Some women from rural areas of Ghana move to urban centers to work as porters in markets (i.e., *kayayo*). Some community members in Malawi engage in short-term or casual jobs, called *ganyu*. These jobs include clearing others' land, carrying goods, and mopping floors. They often receive in-kind compensation like food.

> Malawian, 15-year old female: "Some when they feel they need to go to school still, they work hard on ganyu and other things."

Lack of necessities is also due to poor community infrastructure and facilities, such as tractors and grinding mills for farming; public transportation; roads, markets, and police stations,

along with access to electricity and water. Schools and hospitals are distant and at times inaccessible. One participant reported:

> Malawian, 21-year old male: "Diseases, since they sometimes come in the middle of the night, we wait till morning to look for transportation."

Additional stressors that exacerbate poverty-related stress

Additional stressors exacerbate poverty, making it more difficult to resolve problems (See Table 3). These include: environmental stressors; security, safety, and violence; weak social capital; untimed pregnancy; and death of parent or guardian. Negative coping also hinders stress reduction.

Environmental stressors. Environmental events were discussed, especially by Malawians and by male participants (31 vs. 18 mentions). This includes extreme weather conditions like drought and flooding.

> Ghanaian, 16-year old, male: "… when we farm and there happens to be flooding in that year, it will be difficult to get enough food especially maize as our staple food."

There are land-related problems (i.e., land of poor quality) and animal-related losses. Man-made losses occur when crop or bush-burning spreads before harvest, which destroy soil fertility.

> Ghanaian, 17-year old male: "When he doesn't harvest on time and every other field around him is harvested, they burn the place and it finally affects the one left."

Safety-related stressors. Participants mentioned physical assault, theft, and intimate partner violence. Travelling long distances to get water makes people vulnerable to sexual assault. The young and women, in particular, are at risk of both physical and sexual assault:

> Tanzanian, 16-year old female: "There is a man who hides and waits for girls who are going there to fetch water to rape them. When he sees a girl coming, he will call her and if she refuses, he will use cutlass [*a slashing sword*] to attack the girl…. he attacked one girl and cut her fingers."

Weak social capital. Living in impoverished communities translates to fewer chances of giving and receiving help from people who are already having a hard time meeting individual needs. Participants would rather prioritize their personal and familial needs.

> Malawian, 21-year old female: "Everyone looks at their problems in their household, that even when they have a pail of flour, they cannot get and share. Helping each other stops because everyone does their own thing."

Untimed pregnancy. School disruptions, difficulty finding employment, and childcare expenses are associated with untimed pregnancy, which was mentioned more frequently by females than males (16 vs. 4 times).

> Ghanaian, 19-year old, female: "… they get a boy who can give them money, they start dating the guy and eventually get pregnant. The problem is, if their parents had the money to take care of them, they wouldn't have followed the guy in the first place."

Some women experience relational health problems due to arguments or abandonment by partners, family members, or peers, and they are targets of gossip in their community. Untimed pregnancy is also associated with mental health issues.

> Tanzanian, 18-year old, female: "The thoughts of why questions, why my husband has left me, wondering what is wrong with me, why life has to be this way, and for major challenges one just gets thoughts of, thinking of giving up and not knowing what to do. Start to think that everything has fallen apart."

Death of parent or guardian. Death of parent or guardian results to loss of care and support. It is also associated with weight loss and headaches, mental health problems, and school discontinuation.

> Tanzanian, 17-year old female: "Those without parents, they will be thinking how they can get food and sustain themselves. They face very difficult conditions, sometimes they sit down and cry."

Impact on functioning, health, and education

Lack of necessities, income generation issues, and poor infrastructure and facilities make people vulnerable to more stressors impact daily functioning, health, well-being, and educational opportunities (See Table 4).

It becomes tougher to work and be productive as lack of nourishment depletes energy, whereas poor infrastructure restricts mobility:

> Ghanaian, 28-year old male: "If you did not eat how can you work? You would be there thinking about food and not about the work you are even supposed to do."

Physical health is undermined. Signs of stress manifest by weight loss, looking unclean, not washing, and appearing older. A participant said:

> Malawian, 23-year old female: "… one gets affected and say, "The way I am looking, do I look like a human being or what? What should I do to make myself look like the way my friends look?""

Poor infrastructure and lack of clean water lead to gastrointestinal diseases and vector-borne disease. Malnutrition and stunted growth occur due to lack of nourishment. High blood pressure also occurs, which some attribute to mental health problems. Accidents that lead to injuries are common, such as riding feeble carts to fetch water and driving *bodaboda* (motorcycle taxis common in East Africa) or bicycles.

> Malawian, 21-year old female: "You may have diarrhea, since you picked something bad to eat."

In terms of well-being, the most common are feeling depressed and ashamed, which leads to withdrawal and isolation.

> Ghanaian, 16-year old female: "Sometimes I feel like crying … I will be thinking about how my parents are not able to get my needs for me and tears will be dropping from my eyes."

Others mentioned anxiety, worry, and fear about meeting basic needs:

> Malawian, 17-year old male: "You can get thin because of thinking too much … You think about the future and wonder if you will manage alright."

Relational health is also affected. They displace the stress they experience to others. They do not socialize much because they have no money to spend, feel tired or sick, or are preoccupied with resolving or thinking about their problems:

> Tanzanian, 20-year old male: "Sometimes you can come back home very angry because you have not succeeded to get money, you can quarrel and fight with your wife because you are very angry and don't like to talk to anybody including your wife."

> Ghanaian, female (>18): "One has to go to other communities to grind and if at the time you have to go to mill and there is any social event in the community, the person cannot attend both."

Lastly, students find difficulty attending school and studying due to lack of supplies and distance needed to travel. There are students whose studies get disrupted because they work:

> Tanzanian, 17-year old male: "… pupils absent themselves from going to school as they opt to work as laborers so that they can earn some money."

Coping responses to stress

Negative and positive coping strategies were reported by participants (see Table 5.).

Negative coping. Poverty is also experienced in terms of constraints in availability or access to coping behaviors. Some resort to risk-taking or relating poorly with others.

Risk-taking occurs through stealing to gain resources. Risk-taking also manifests through sexual behaviors. Unsafe or transactional sex and partner concurrency exposes women to untimed pregnancy or contracting sexually transmitted infections or HIV. Substance misuse as coping further diminishes finances and capacity to work, family neglect, and intimate partner violence. It can lead to engagement in transactional sex or stealing to have money to buy drugs or alcohol.

Risk-taking was mentioned more frequently by Tanzania participants:

> Tanzanian, 17-year old male: "Some engage in theft because they don't have anything to support their family … you can decide to steal some jackfruits and eat."

Tanzanian, 17-year old female: "The girl was nine months pregnant but still sleeps with men so that she can have something to eat."

Others abandon their family. Some abandon their partners who then become single parents, whereas children are left with relatives.

Malawian, 19-year old male: "Because you lack food, you suffer at home. Sometimes it's the wife who runs away from you, like, "I'm gone," because a person lacks food."

Positive coping. Five positive coping responses were discussed by participants.

First is problem-focused coping, including working hard, starting a business, or changing jobs. Included is planning for the future, like investing and saving money or crops; going to school or sending children to school; helping improve community infrastructure; finding additional employment; and caring for their health.

Ghanaian, 15-year old male: "They go early to the bushes to handpick shea nuts before going to school … that is what they will sell to be able to buy some of those things."

Second is social coping by providing help and advice to others, seeking help or opening up to others, improving relationships, and paying off debts.

Third is spiritual coping by turning to God.

Fourth is preventive coping by avoiding problematic people, being cautious in public places, driving safely, and avoiding risky behaviors.

Last is emotion-focused coping, by being positive, being persistent, and tolerating their situation.

Malawian, 21-year old male: "The person thinks deeply, like these things that I have found, they shouldn't elude me in a short time, no. So, the person works hard, with the intention of adding more to it."

Discussion

In this descriptive qualitative study, we contextualized key stressors, their consequences, and coping behaviors within poor Sub-Saharan African agrarian communities in Ghana, Malawi, and Tanzania. The general framework that emerged from this study involved two main sources of stress – all related to poverty. The first key stressor highlighted across settings was the lack of basic necessities, characterized by lacking basic needs and difficulty in income generation. This finding, ubiquitous across interviews, highlighted the degree to which economic conditions predominate the local conceptualization of stress. The second source of stress were additional stressors that are associated with poverty, and that exacerbate poverty-related stress. Poverty related stressors were worsened by these additional downstream consequences of poverty and environmental concerns. Importantly, these findings suggest a feedback loop whereby stress leads to further stressors, which in turn can be exacerbated by poor coping. For example, food insecurity is worsened by drought, which lead to further precarity. The lack of needed resources to protect against the influence of drought (e.g., loans), worsens stress. This is supported by the loss spiral concept in conservation of resources theory,[34] which states that losses to economic resources and other resources beget further losses. Stress related to poor weather conditions, poor education, and safety and security, all intensify the impact of economic challenges such that there is a multiplicative effect of these other stressors on economic related stressors. With regard to mental health in particular, previous reviews document the association between mental ill health and poverty.[8] In this study, poverty was associated with impacts on health status, along with educational and economic advancement opportunity.

Intimate partner violence was a key finding linked to poverty-related stress, and this is supported by national statistics. For example, in Ghana, 41 percent of women experience intimate partner violence in their lifetime, and rates were even higher (64 percent) among women

in rural, poor households in northern Ghana, similar to the area where are current sample comes from.[35,36] Further, in Malawi and Tanzania, 42 and 50 percent of ever-married women, respectively, have experienced physical, sexual or emotional intimate partner violence.[37,38]

Key coping processes were highlighted by participants. Negative coping strategies involved risk-taking behaviors including stealing and transactional sex. These lead to further stressors including sexually transmitted infections (STIs) and unplanned pregnancy, which sets up a continuing cycle of resource depletion, stress, and unsafe health practices. This is supported by previous research linking risky behaviors, STIs, and poverty.[39] Engaging in avoidance coping included using alcohol and other drugs, which in turn led to relational health challenges and GBV. These findings fit within a syndemic conceptualization where substance abuse, violence, and sexually transmitted infections are mutually enhancing and co-occur,[40] driven by poor economic conditions. Findings also highlight how adolescent girls often find themselves uniquely vulnerable to stressors related to the intersection of poverty and gender, including early pregnancy, school drop-out and GBV.

Appraisals about the nature of stressors and available coping resources did not emerge in the community narratives, which did not lend support to the transactional stress model.[9] Rather, coping processes were described as bounded within the economic and resource constraints in the communities. Poverty restricts the coping repertoires available within the community.

Despite their challenging circumstances, participants also used healthy and positive coping strategies. Problem-focused coping strategies revolved largely around work, contingency planning for crop and other losses, and caring for their health. Social networks were also an important source of coping support, but this resource is bounded by the availability of people who possess the capacity to provide the specific support needed.[41] Poverty drove partner and

child abandonment, suggesting that when resources are lacking, familial and kinship network members are seen as a liability for survival.

The current findings have implications for intervention programs within these contexts. Given the emergence of poverty as a key underlying factor, and linkages between health, stress, and poverty,[8,42] cash transfer interventions are hypothesized to lead to reductions in stress; however, the empirical evidence is mixed.[26,43] While a study in Kenya did find that cash transfers reduced self-perceived stress (but not cortisol, a biological marker for stress),[44] two unconditional cash transfer programs in Zambia were successful at reducing poverty but had no impacts on self-perceived stress.[26]

The current study should be viewed in light of several limitations. First, the study was not able to adequately differentiate between chronic and short-term stressors. All stressors were reported as chronic by study participants. This limits our understanding of how daily hassles interact to produce stress within the community. Second, since we were focused on describing stressors, caution should be exercised when viewing this data as it may present an overly negative portrayal of life within these communities. Third, the age range of our participants may not reflect the breadth of stressors experienced by older community members. Finally, we cannot rule out the possibility of seasonal variation in the salience of stressors experienced in these villages given their agrarian nature. We did ask about stressors throughout the year in order to mitigate this concern.

Our findings suggest that cash transfer and other poverty alleviation programs could reduce mental health and physical health problems, particularly as they relate to those stressors that have direct relationships with poverty. This provides greater specificity for the pathways upon which economic interventions are predicted to be effective. Poverty alleviation programs

may also promote resiliency, reducing the need for negative coping strategies in the face of shocks and non-poverty stressors such as droughts and floods.[45] However, despite their ability to mitigate the impacts of poverty and feedback loops related to coping, these programs are unlikely to address structural factors related to poverty, such as lack of access to schools and quality health facilities, which were often mentioned by respondents.

The mixed evidence from cash transfer interventions and the results from our current study suggest the need for new quantitative measures of stress. Most stress studies in LMIC rely on the Perceived Stress Scale, which was validated among a largely educated populations in the United States and elsewhere,[46] and was intended for use among people with at least a junior high education level.[27] Outside this population, this scale may not capture important features of stress. Any new stress scale should differentiate between poverty and non-poverty-related stressors to enable a more nuanced view of the source and type of stressors experienced. Key aspects of income generation, food and water insecurity, relational factors, and exposure to violence would be a specific measurement of stress within agrarian regions of African countries experiencing ongoing poverty.

In summary, we described stressors in rural, agrarian populations in sub-Saharan African and respondents' descriptions of how they experience and cope with these stressors. The salience of poverty-related stressors was reflected in these descriptions, and suggests that stress should be considered in understanding pathways between poverty alleviation programs and health and general well-being, and that adequate measures of stress may need to be further contextualized and adapted to these settings.

Author Contributions

BJH led the research design, qualitative analysis, and wrote the first draft of the paper. MRG conducted the analysis, wrote the results, and edited the paper for intellectual content. JH jointly

conceptualized the research with TP, led the field data collection training, contributed to the analysis, and edited the paper for intellectual content. AP collected data in the field, contributed to the analysis, and edited the paper for intellectual content. LP collected data in the field, contributed to the analysis, and edited the paper for intellectual content. TP jointly conceptualized the research with JH, supervised the project, contributed to the analysis, edited the paper for intellectual content, and secured project funding. All authors approved the final paper for publication.

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Table 1. Demographic information

Country	Age group	Male (n=41)	Female (n=40)
Tanzania (n=40)	Below 18 years old	n=10 *M* = 16.80, *SD* = 0.63	n=10 *M* = 16.50, *SD* = 0.85
	Above 18 years old	n=10 *M* = 25.00, *SD* = 3.89	n=10 *M* = 21.90, *SD* = 4.31
Malawi (n=20)	Below 18 years old	n=5 *M* = 16.20, *SD* = 1.10	n=5 *M* = 15.80, *SD* = 0.84
	Above 18 years old	n=5 *M* = 20.60, *SD* = 1.14	n=5 *M* = 22.20, *SD* = 3.03
Ghana (n=21)	Below 18 years old	n=6 *M* = 15.67, *SD* = 0.82	n=5 *M* = 16.20, *SD* = 0.84
	Above 18 years old	n=5 *M* = 25.20, *SD* = 3.35	n=5* *M* = 23.00, *SD* = 5.60

*One participant did not know her exact age.

Table 2. Lack of basic necessities and its causes

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Lack of basic necessities	73	33	83	19	95	21	100
Food	70	31	78	19	95	20	95
School materials/fees	27	6	15	9	45	12	57
Clothing and shoes	26	6	15	11	55	9	43
Medical care	25	11	28	5	25	9	43
Housing	25	9	23	8	40	8	38
Water	20	6	15	2	10	12	57
Farming supplies	16	1	3	7	35	8	38
Causes of lack of basic necessities							
Income generation issues	74	34	85	20	100	20	95
Poor community infrastructure/facilities	50	25	63	11	55	14	67

Table 3. Stressors that exacerbate poverty

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Environmental stressors	49	21	53	17	85	11	52
Security, safety, and violence	44	31	78	10	50	3	14
Weak social capital	24	8	20	10	50	6	29
Untimed pregnancy	20	13	33	2	10	5	24
Death of a parent or guardian	12	8	20	4	20	0	0

Table 4. Impacts on functioning, health, and education

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Daily functioning	40	12	30	13	65	15	71
Health	76	36	90	19	95	21	100
Mental health	69	29	73	19	95	21	100
Physical health	61	24	60	18	90	19	90
Relational health	58	26	65	15	75	17	81
Education	42	15	38	11	55	16	76

Table 5. Negative and Positive coping strategies

Coping strategy	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Negative coping	59	34	85	14	70	11	52
Risk-taking behaviors	52	34	85	10	50	8	38
Relating poorly	23	9	23	8	40	6	29
Positive coping	79	39	98	20	100	20	95
Problem-focused coping	70	33	83	19	95	18	86
Social coping	63	30	75	19	95	14	67
Spiritual coping	21	9	23	5	25	7	33
Preventive coping	18	16	40	2	10	0	0
Emotion-focused coping	13	8	20	4	20	1	5

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Perspectives of adolescent and young adults on poverty related stressors: A qualitative study in Ghana, Malawi, and Tanzania

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Abstract

Objectives To define key stressors experienced and coping behaviors within poor agrarian communities in Sub-Saharan Africa.

Design Descriptive qualitative study incorporating inductive thematic analysis.

Participants 81 participants purposely sampled, stratified by age (adolescents and young adults) and sex

Setting The study was conducted in villages in Ghana, Malawi, and Tanzania.

Results Stressors were thematically grouped into those directly related to poverty and the lack of basic necessities (e.g., food insecurity), and additional stressors (e.g., drought) that worsen poverty-related stress. Impacts on functioning, health and well-being, and key coping behaviors, both positive and negative, were identified. The findings together inform a more nuanced view of stress within these contexts.

Conclusion Although participants were asked to provide general reflections about stress in their community, the salience of poverty-related stressors was ubiquitously reflected in respondents' responses. Poverty-related stressors affect development, well-being, and gender-based violence. Future research should focus on interventions to alleviate poverty-related stress to achieve the UN Sustainable Development Goals.

Strengths and limitations of this study

- Interviews were conducted across three countries which enhances generalizability
- Field work was conducted with support of local community leaders and experienced field-based researchers in the local context
- Lack of familiarity with interview teams and a single interview may have contributed to participant reticence
- Interviews only with younger participants limits generalizability to the entire community
  Timing of the study did not consider environmental shocks, and this could have led to bias in the data

Introduction

Poverty is a key social determinant of population health.[1] Understanding the impact of poverty and poverty-related stressors is an important public health priority, and critical to the 2030 Agenda for Sustainable Development. In low- and middle-income countries (LMIC), stress is linked to noncommunicable diseases including poorer mental health and diabetes,[2] and communicable diseases, including sexually transmitted infection and HIV.[3] At present, this literature relies on broad and nonspecific measurement of stress (e.g., perceived stress), and follows largely from theories developed in high-income country contexts. The current study describes key stressors in three sub-Saharan countries, to sharpen the measurement of stress in these and similar contexts.

A stressor is an event or shock that evokes distress. Stressors are either acute (events that are time-limited, with clear onset/offset) or chronic (events that are less time-limited, and more open ended).[4] Chronic stressors in particular contribute to poor physical health. Biological evidence suggests that chronic stress wears down bodily systems and leads to deterioration and decline.[5,6] For children, neurocognitive development can be delayed or worsened.[7] Within LMIC, chronic poverty and low socioeconomic status are associated with higher levels of stress and poorer mental health.[8]

Prevailing stress theories are derived largely from high-income contexts and may not provide the most complete framework to understand stress globally and in non-western LMIC countries in particular. The transactional stress theory defines stress as the experience of a stimulus as threatening and an appraisal of the degree to which this stimulus can be managed within a person's available coping repertoire.[9] This model of stress has been critiqued as it

suggests appraisal (rather than objective reality) is central to the stress process. Others have argued that the possession of resources (e.g., economic, material) determines whether a person can deal effectively with the demands of a stressor. According to the Conservation of Resources Theory, the ability to overcome stressors is predicated on the availability of needed resources that can be mobilized to overcome adverse events.[10] Further, losses and gains to resources are central to how a person experiences stress.

Within LMIC, chronic poverty largely shapes the availability of resources to mobilize, and may set boundaries around adaptive coping processes.[11] Active and problem focused coping strategies are associated with better health outcomes but are conditioned on the ability of a community to actively change aspects of their environment.[12,13] In contrast, avoidant coping, or emotion focused coping, while less likely to alleviate the stressor directly, are often used when more active strategies are not possible. Within communities experiencing chronic poverty, these are often employed when environments cannot be changed.[14,15]

Communities cope with stressors by engaging in culturally meaningful strategies, to achieve goals and outcomes that are consonant with cultural values and norms. What constitutes a stressor and how it is experienced is a function of context and culture.[16] The cultural context largely influences the types of stressors encountered, the degree to which stressors are associated with distress, the coping strategies that are selected, and different mechanisms available within the culture to cope (e.g., social support). Some coping strategies may lead to additional disease burden. For example, poverty can lead to sexual risk-taking behaviors in service of resource acquisition. Studies demonstrate that lack of food, poor housing, and healthcare is associated with riskier sex, including partner concurrency, condomless sex, and transactional sex.[17,18] These behaviors lead to increased risk of sexually transmitted infection and HIV.[3]

Limited qualitative inquiries have attempted to define stress and sources of stress in LMIC. It is important to identify types of stressors since this information helps to focus potential intervention pathways, increase measurement specificity, and lead to a richer conceptualization of the burden of stress in these communities. Studies designed to rapidly assess important community-defined problems within vulnerable populations (e.g., conflict affected) within LMIC suggest that key stressors are related to economic conditions and social relationships.[19,20] Limited research was conducted within rural agrarian settings in Sub-Saharan African countries. The results from these investigations show that poor education, healthcare, and water and food scarcity as commonly reported.[21,22] Evidence also showed that food insecurity is closely linked to poor mental health.[23-25] Additional studies are needed that focuses on defining stress within LMIC, to inform the measurement of stress within these contexts, since stress is theorized as a critical mediating pathway through which cash transfer interventions are effective.[26,27]

We chose to qualitatively investigate descriptions of key stressors within poor, agrarian communities in three African countries: Ghana, Malawi, and Tanzania. Each of these communities experience chronic poverty and have national large-scale cash transfer programmes aimed at poverty alleviation.[28,29] This makes these ideal settings to gain insights into how communities conceptualize stress, which stressors are most salient within this context, and which types of stressors are likely to be affected through poverty alleviation efforts. This descriptive qualitative study focused specifically on adolescents and young adults, which is the age-range during which many mental health problems first manifest[30] and may affect transitions to adulthood.

These three communities are similar but different enough to aid in developing an understanding of stress that may generalize across multiple contexts. There are several

contextual and historical factors about these contexts worth noting. First, the prevalence of girls married by the age of 18 in Ghana, Malawi, and Tanzania was 21%, 42%, and 31%.[31] Second, there are uneven secondary school completion rates, with 70%, 38% and 26% gross secondary school enrolments in Ghana, Malawi and Tanzania according to World Bank 2017 data. Third, all three countries were previously governed by the British. They gained independence in: 1957 Ghana; 1964 Malawi; 1964 Tanzania (merger of Tanganyika and Zanzibar). In 2017, the World Bank ranked Malawi and Tanzania as lower income countries and Ghana as a lower middle-income country. Fourth, each country has large rural population according to the World Bank: 45% Ghana, 83% Malawi, and 67% Tanzania. Fifth, each country has a large informal sector according to the World Bank Enterprise Surveys. In Ghana, Malawi and Tanzania, respectively 69%, 72%, and 73% of firms compete against unregistered or informal firms.

The purpose of the current qualitative study was twofold. First, we aimed to investigate the intersection of poverty and chronic stress in order to identify key stressors associated with poverty. Second, we aimed to identify coping strategies used within this context to deal with these stressors. These aims articulate with UNICEF's plan to develop a context specific stress assessment tool and within the aim to examine impacts of poverty alleviation programs on stress (i.e., cash transfers).

Methods

Study design

This study was a descriptive qualitative study utilizing in-depth interviews. In all countries, adults provided informed consent for their own participation and consent for interviews with minors. Minors (<18 years old) provided assent, following standard ethnical procedures. Ethical

approval for the study was obtained from COSTECH in Tanzania, University of Malawi ethics committee in Malawi and the ethics committee at Navrongo Health Research Centre in Ghana.

Participants

The focus of the study was on rural areas in Tanzania, Ghana, and Malawi. Participants were purposively sampled to ensure representation of stressors across sex and age strata (adolescent/adult) within each village. The age range for adolescents was from 15 to 18, and young adults were 18 and 24. In Malawi, 20 in-depth interviews were conducted in Salima district from the Mkhwidzi Group Village Head in the Ndindi Traditional Authority. In Tanzania, 40 in-depth interviews were conducted in two rural villages of Kisarawe and Morogoro districts. In Ghana, 21 in-depth interviews were conducted in the Northern and Upper East regions. Survey firms were asked to select villages that were representative of the rural population in the country based on economic conditions, and population demographics. Within villages, senior village members assisted in recruitment by selecting interviewees by age and sex strata. All interviews took place in locations that protected participant privacy and increased the participant comfort in answering questions. See Table 1, for an overview of age and sex strata by country.

Interviews

Data were collected using in-depth interviews by local teams skilled in qualitative data collection. Data collection took place in May, 2017 in Ghana, January, 2017 in Malawi, and November, 2016 in Tanzania. These teams came from REPOA in Tanzania, The Centre for Social Research at the University of Malawi, and Navrongo Health Research Centre in Ghana. All data collected was anonymized. Transcripts were translated into English for analysis. These research teams were not known to community members before the interviews took place. Despite

cultural similarity between interviewers and community members, some participants may have been disinclined to share their information since interviewers were unfamiliar to them. Interviewers were matched to interviewees by sex to mitigate bias in the interviews. There were no interactions between the study authors and participants.

Training and piloting for the current study took place over 4 days in each country (two days for training and one day each for pilot and debriefing) by UNICEF Innocenti Office of Research technical staff (JdH, AP, LP). Trainings included a study overview, a refresher on qualitative methods and research ethics, discussions on each question in the interview guide, consent/assent processes, and role-playing. Modifications to help with the interview flow were made based on interviewer feedback. Interview guides were translated into the local languages (Dagbani and Gurune in Ghana, Chichewa in Malawi, and Swahili in Tanzania).

An interview guide was developed that asked the following questions:

Please name all of the various events (difficulties, stressors) that occur in people's lives in your community. Please focus on major or important events.

Please name all of the various challenges (difficulties, stressors) that occur in people's lives in your community. Please focus on everyday challenges.

Please name all of the problems related to poverty that people in your community experience.

How do people deal with these most important challenges?

Participants were asked to report about their community of similar ages peers rather than personal experiences, to reduce potential the concealment of stressors that may evoke embarrassment or stigma. For each event that was named, follow-up questions were asked about consequent behaviors, thoughts, emotions, and coping mechanisms. These follow-up probes were decided during field training by the interviewers and applied during interviews using local

languages. All interviews were recorded and transcribed first into the local language, and then translated once into English.

Data Analysis

Data were analyzed with NVivo 11 Plus[32] using inductive qualitative thematic analysis following a six-phase process.[33] This method was chosen given the descriptive study aims. We analyzed data from Tanzania first, then created a coding frame. We then analyzed data from Malawi then Ghana using the coding frame. We expanded the initial coding frame by including new codes derived from the Malawi and Ghana data. Analysis began with a process of immersion where each author read several transcripts from the Tanzania interviews. We discussed the emerging themes together to develop the coding frame. The Tanzania transcripts were then re-analyzed (data coding and finalizing themes) by the first and second authors (BJH, MRG) using the coding frame, with regular discussions with the other authors for their comments and suggestions. For remaining Malawi and Ghana transcripts, we coded text that discussed stressors, impacts, and coping strategies. We collated codes into themes, and when relevant, subthemes. We reviewed the themes vis-à-vis the coded extracts. This step involved refining existing themes, creating new themes, and reviewing extracts to form coherent patterns until we reached a fitting thematic map of our data. Lastly, in our synthesis of the thematic analysis, we provided ample textual extracts balanced by themes, country, and strata.

Patient and Public Involvement statement

Patients were not involved in this research.

Results

We organize the results in a broad framework encompassing 1) stressors related to poverty and the lack of basic necessities, 2) additional stressors that worsen poverty-related

stress, 3) impacts of these stressors on functioning, health, and well-being, and 4) coping strategies used by community members. Participants report stress related to the lack of basic necessities, which is due to income generation issues and poor community infrastructure and facilities. Additional stressors, including environmental stressors; safety; weak social capital; untimed pregnancy; and death of a parent or guardian, worsened poverty-related stress. These stressors were linked to difficulties in daily functioning, health, well-being, and education. Coping repertoires were bound due to constraints of poverty, and negative and positive coping behaviors were identified.

Poverty-related stress and the lack of basic necessities

Participants reported lacking basic necessities as key stressors, which is poverty-related. These stressors are presented in Table 2.

The lack of food was a key issue mentioned. One participant said:

> Ghanaian, 17-year old female: "About the food, it is a pity. I will look at my father, think and wish that I have money to buy enough food for us to eat in the house."

Other necessities included school-related expenses (mentioned twice as often by younger participants), clothing and shoes, proper housing, and medical care (mentioned almost twice as often by older participants).

They lack necessities due to limitations in income generation. Many have physically-demanding jobs that result in low and unstable revenues. This is illustrated in this excerpt:

> Tanzanian, 20-year old male: "Farming is like gambling: you can get harvest or not get any. It is a game of chance. You spend a lot of money but end up getting nothing."

Some women from rural areas of Ghana move to urban centers to work as porters in markets (i.e., *kayayo*). Some community members in Malawi engage in short-term or casual jobs,

called *ganyu*. These jobs include clearing others' land, carrying goods, and mopping floors. They often receive in-kind compensation like food.

> Malawian, 15-year old female: "Some when they feel they need to go to school still, they work hard on ganyu and other things."

Lack of necessities is also due to poor community infrastructure and facilities, such as tractors and grinding mills for farming; public transportation; roads, markets, and police stations, along with access to electricity and water. Schools and hospitals are distant and at times inaccessible. One participant reported:

> Malawian, 21-year old male: "Diseases, since they sometimes come in the middle of the night, we wait till morning to look for transportation."

Additional stressors that exacerbate poverty-related stress

Additional stressors exacerbate poverty, making it more difficult to resolve problems (See Table 3). These include: environmental stressors; security, safety, and violence; weak social capital; untimed pregnancy; and death of parent or guardian. Negative coping also hinders stress reduction.

Environmental stressors. Environmental events were discussed, especially by Malawians and by male participants (31 vs. 18 mentions). This includes extreme weather conditions like drought and flooding.

> Ghanaian, 16-year old, male: "… when we farm and there happens to be flooding in that year, it will be difficult to get enough food especially maize as our staple food."

There are land-related problems (i.e., land of poor quality) and animal-related losses. Man-made losses occur when crop or bush-burning spreads before harvest, which destroy soil fertility.

> Ghanaian, 17-year old male: "When he doesn't harvest on time and every other field around him is harvested, they burn the place and it finally affects the one left."

Safety-related stressors. Participants mentioned physical assault, theft, and intimate partner violence. Travelling long distances to get water makes people vulnerable to sexual assault. The young and women, in particular, are at risk of both physical and sexual assault:

> Tanzanian, 16-year old female: "There is a man who hides and waits for girls who are going there to fetch water to rape them. When he sees a girl coming, he will call her and if she refuses, he will use cutlass [*a slashing sword*] to attack the girl…. he attacked one girl and cut her fingers."

Weak social capital. Living in impoverished communities translates to fewer chances of giving and receiving help from people who are already having a hard time meeting individual needs. Participants would rather prioritize their personal and familial needs.

> Malawian, 21-year old female: "Everyone looks at their problems in their household, that even when they have a pail of flour, they cannot get and share. Helping each other stops because everyone does their own thing."

Untimed pregnancy. School disruptions, difficulty finding employment, and childcare expenses are associated with untimed pregnancy, which was mentioned more frequently by females than males (16 vs. 4 times).

> Ghanaian, 19-year old, female: "… they get a boy who can give them money, they start dating the guy and eventually get pregnant. The problem is, if their parents had the money to take care of them, they wouldn't have followed the guy in the first place."

Some women experience relational health problems due to arguments or abandonment by partners, family members, or peers, and they are targets of gossip in their community. Untimed pregnancy is also associated with mental health issues.

> Tanzanian, 18-year old, female: "The thoughts of why questions, why my husband has left me, wondering what is wrong with me, why life has to be this way, and for major challenges one just gets thoughts of, thinking of giving up and not knowing what to do. Start to think that everything has fallen apart."

Death of parent or guardian. Death of parent or guardian results to loss of care and support. It is also associated with weight loss and headaches, mental health problems, and school discontinuation.

> Tanzanian, 17-year old female: "Those without parents, they will be thinking how they can get food and sustain themselves. They face very difficult conditions, sometimes they sit down and cry."

Impact on functioning, health, and education

Lack of necessities, income generation issues, and poor infrastructure and facilities make people vulnerable to more stressors impact daily functioning, health, well-being, and educational opportunities (See Table 4).

It becomes more difficult to work and be productive as lack of nourishment depletes energy, whereas poor infrastructure restricts mobility:

> Ghanaian, 28-year old male: "If you did not eat how can you work? You would be there thinking about food and not about the work you are even supposed to do."

Stress and work take a physical toll and signs of stress manifest by weight loss, looking unclean, not washing, and appearing older. A participant said:

> Malawian, 23-year old female: "… one gets affected and say, "The way I am looking, do I look like a human being or what? What should I do to make myself look like the way my friends look?""

Poor infrastructure and lack of clean water lead to gastrointestinal diseases and vector-borne disease. Malnutrition and stunted growth occur due to lack of nourishment. High blood pressure also occurs, which some attribute to mental health problems. Accidents that lead to injuries are common, such as riding feeble carts to fetch water and driving *bodaboda* (motorcycle taxis common in East Africa) or bicycles.

> Malawian, 21-year old female: "You may have diarrhea, since you picked something bad to eat."

In terms of well-being, the most common are feeling depressed and ashamed, which leads to withdrawal and isolation.

> Ghanaian, 16-year old female: "Sometimes I feel like crying … I will be thinking about how my parents are not able to get my needs for me and tears will be dropping from my eyes."

Others mentioned anxiety, worry, and fear about meeting basic needs:

> Malawian, 17-year old male: "You can get thin because of thinking too much … You think about the future and wonder if you will manage alright."

Relational health is also affected. They displace the stress they experience to others. They do not socialize much because they have no money to spend, feel tired or sick, or are preoccupied with resolving or thinking about their problems:

> Tanzanian, 20-year old male: "Sometimes you can come back home very angry because you have not succeeded to get money, you can quarrel and fight with your wife because you are very angry and don't like to talk to anybody including your wife."

> Ghanaian, female (>18): "One has to go to other communities to grind and if at the time you have to go to mill and there is any social event in the community, the person cannot attend both."

Lastly, students find difficulty attending school and studying due to lack of supplies and distance needed to travel. There are students whose studies get disrupted because they work:

> Tanzanian, 17-year old male: "… pupils absent themselves from going to school as they opt to work as laborers so that they can earn some money."

Coping responses to stress

Negative and positive coping strategies were reported by participants (see Table 5.).

Negative coping. Poverty is also experienced in terms of constraints in availability or access to coping behaviors. Some resort to risk-taking or relating poorly with others.

Risk-taking occurs through stealing to gain resources. Risk-taking also manifests through sexual behaviors. Unsafe or transactional sex and partner concurrency exposes women to untimed pregnancy or contracting sexually transmitted infections or HIV. Substance misuse as coping further diminishes finances and capacity to work, family neglect, and intimate partner violence. It can lead to engagement in transactional sex or stealing to have money to buy drugs or alcohol.

Risk-taking was mentioned more frequently by Tanzania participants:

> Tanzanian, 17-year old male: "Some engage in theft because they don't have anything to support their family … you can decide to steal some jackfruits and eat."

> Tanzanian, 17-year old female: "The girl was nine months pregnant but still sleeps with men so that she can have something to eat."

Others abandon their family. Some abandon their partners who then become single parents, whereas children are left with relatives.

> Malawian, 19-year old male: "Because you lack food, you suffer at home. Sometimes it's the wife who runs away from you, like, "I'm gone," because a person lacks food."

Positive coping. Five positive coping responses were discussed by participants.

First is problem-focused coping, including working hard, starting a business, or changing jobs. Included is planning for the future, like investing and saving money or crops; going to school or sending children to school; helping improve community infrastructure; finding additional employment; and caring for their health.

> Ghanaian, 15-year old male: "They go early to the bushes to handpick shea nuts before going to school … that is what they will sell to be able to buy some of those things."

Second is social coping by providing help and advice to others, seeking help or opening up to others, improving relationships, and paying off debts.

Third is spiritual coping by turning to God.

Fourth is preventive coping by avoiding problematic people, being cautious in public places, driving safely, and avoiding risky behaviors.

Last is emotion-focused coping, by being positive, being persistent, and tolerating their situation.

Malawian, 21-year old male: "The person thinks deeply, like these things that I have found, they shouldn't elude me in a short time, no. So, the person works hard, with the intention of adding more to it."

Discussion

In this descriptive qualitative study, we contextualized key stressors, their consequences, and coping behaviors within poor Sub-Saharan African agrarian communities in Ghana, Malawi, and Tanzania. The general framework that emerged from this study involved two main sources of stress – all related to poverty. This is notable as the interview questions did not specifically focus on poverty-related stressors. The first key stressor highlighted across settings was the lack of basic necessities, characterized by lacking basic needs and difficulty in income generation. This finding, ubiquitous across interviews, highlighted the degree to which economic conditions predominate the local conceptualization of stress. The second source of stress were additional stressors that are associated with poverty, and that exacerbate poverty-related stress. Poverty related stressors were worsened by these additional downstream consequences of poverty and environmental concerns. Importantly, these findings suggest a feedback loop whereby stress leads to further stressors, which in turn can be exacerbated by poor coping. For example, food insecurity is worsened by drought, which lead to further precarity. The lack of needed resources to protect against the influence of drought (e.g., loans), worsens stress. This is supported by the loss spiral concept in conservation of resources theory,[34] which states that losses to economic resources and other resources beget further losses. Stress related to poor weather conditions, poor education, and safety and security, all intensify the impact of economic challenges such that there is a multiplicative effect of these other stressors on economic related stressors. With regard to mental health in particular, previous reviews document the association between mental ill health and poverty.[8] In this study, poverty was associated with impacts on health status, along with educational and economic advancement opportunity.

Intimate partner violence was a key finding linked to poverty-related stress, and this is supported by national statistics. For example, in Ghana, 41 percent of women experience intimate partner violence in their lifetime, and rates were even higher (64 percent) among women in rural, poor households in northern Ghana, similar to the area where are current sample comes from.[35,36] Further, in Malawi and Tanzania, 42 and 50 percent of ever-married women, respectively, have experienced physical, sexual or emotional intimate partner violence.[37,38]

Key coping processes were highlighted by participants. Negative coping strategies involved risk-taking behaviors including stealing and transactional sex. These lead to further stressors including sexually transmitted infections (STIs) and unplanned pregnancy, which sets up a continuing cycle of resource depletion, stress, and unsafe health practices. This is supported by previous research linking risky behaviors, STIs, and poverty.[39] Engaging in avoidance coping included using alcohol and other drugs, which in turn led to relational health challenges and gender based violence (GBV). These findings fit within a syndemic conceptualization where substance abuse, violence, and sexually transmitted infections are mutually enhancing and co-occur,[40] driven by poor economic conditions. Findings also highlight how adolescent girls often find themselves uniquely vulnerable to stressors related to the intersection of poverty and gender, including early pregnancy, school drop-out and GBV.

Appraisals about the nature of stressors and available coping resources did not emerge in the community narratives, which did not lend support to the transactional stress model.[9] Rather, coping processes were described as bounded within the economic and resource constraints in the communities. Poverty restricts the coping repertoires available within the community.

Despite their challenging circumstances, participants also used healthy and positive coping strategies. Problem-focused coping strategies revolved largely around work, contingency

planning for crop and other losses, and caring for their health. Social networks were also an important source of coping support, but this resource is bounded by the availability of people who possess the capacity to provide the specific support needed.[41] Poverty drove partner and child abandonment, suggesting that when resources are lacking, familial and kinship network members are seen as a liability for survival.

The current findings have implications for intervention programs within these contexts. Given the emergence of poverty as a key underlying factor, and linkages between health, stress, and poverty,[8,42] cash transfer interventions are hypothesized to lead to reductions in stress; however, the empirical evidence is mixed.[26,43] While a study in Kenya did find that cash transfers reduced self-perceived stress (but not cortisol, a biological marker for stress),[44] two unconditional cash transfer programs in Zambia were successful at reducing poverty but had no impacts on self-perceived stress.[26]

The current study should be viewed in light of several limitations. First, the study was not able to adequately differentiate between chronic and short-term stressors. All stressors were reported as chronic by study participants. This limits our understanding of how daily hassles interact to produce stress within the community. Second, since we were focused on describing stressors, caution should be exercised when viewing this data as it may present an overly negative portrayal of life within these communities. Third, the age range of our participants may not reflect the breadth of stressors experienced by older community members. Finally, we cannot rule out the possibility of seasonal variation in the salience of stressors experienced in these villages given their agrarian nature. We did ask about stressors throughout the year in order to mitigate this concern.

Our findings suggest that cash transfer and other poverty alleviation programs could

reduce mental health and physical health problems, particularly as they relate to those stressors that have direct relationships with poverty. This provides greater specificity for the pathways upon which economic interventions are predicted to be effective. Poverty alleviation programs may also promote resiliency, reducing the need for negative coping strategies in the face of shocks and non-poverty stressors such as droughts and floods.[45] However, despite their ability to mitigate the impacts of poverty and feedback loops related to coping, these programs are unlikely to address structural factors related to poverty, such as lack of access to schools and quality health facilities, which were often mentioned by respondents.

The current study demonstrated a specific mix of stressors largely focused around poverty. Most stress studies in LMIC rely on the Perceived Stress Scale, which was validated among a largely educated populations in the United States and elsewhere,[46] and was intended for use among people with at least a junior high education level.[27] Outside this population, this scale may not capture important features of stress. Moreover, a new stress scale could be designed to be more specific about the sources of stress, and not only focus on the levels of stress experienced in a community. Differentiation between poverty and non-poverty-related stressors enables a more nuanced view of the source and type of stressors experienced. Key aspects of income generation, food and water insecurity, relational factors, and exposure to violence would be a specific measurement of stress within agrarian regions of African countries experiencing ongoing poverty.

In summary, we described stressors in rural, agrarian populations in sub-Saharan African and respondents' descriptions of how they experience and cope with these stressors. The salience of poverty-related stressors was reflected in these descriptions, and suggests that stress should be considered in understanding pathways between poverty alleviation programs and health and

general well-being, and that adequate measures of stress may need to be further contextualized and adapted to these settings.

Author Contributions

BJH led the research design, qualitative analysis, and wrote the first draft of the paper. MRG conducted the analysis, wrote the results, and edited the paper for intellectual content. JH jointly conceptualized the research with TP, led the field data collection training, contributed to the analysis, and edited the paper for intellectual content. AP collected data in the field, contributed to the analysis, and edited the paper for intellectual content. LP collected data in the field, contributed to the analysis, and edited the paper for intellectual content. TP jointly conceptualized the research with JH, supervised the project, contributed to the analysis, edited the paper for intellectual content, and secured project funding. All authors approved the final paper for publication.

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Table 1. Demographic information

Country	Age group	Male (n=41)	Female (n=40)
Tanzania (n=40)	Below 18 years old	n=10 *M* = 16.80, *SD* = 0.63	n=10 *M* = 16.50, *SD* = 0.85
	Above 18 years old	n=10 *M* = 25.00, *SD* = 3.89	n=10 *M* = 21.90, *SD* = 4.31
Malawi (n=20)	Below 18 years old	n=5 *M* = 16.20, *SD* = 1.10	n=5 *M* = 15.80, *SD* = 0.84
	Above 18 years old	n=5 *M* = 20.60, *SD* = 1.14	n=5 *M* = 22.20, *SD* = 3.03
Ghana (n=21)	Below 18 years old	n=6 *M* = 15.67, *SD* = 0.82	n=5 *M* = 16.20, *SD* = 0.84
	Above 18 years old	n=5 *M* = 25.20, *SD* = 3.35	n=5* *M* = 23.00, *SD* = 5.60

*One participant did not know her exact age.

Table 2. Lack of basic necessities and its causes

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Lack of basic necessities	73	33	83	19	95	21	100
Food	70	31	78	19	95	20	95
School materials/fees	27	6	15	9	45	12	57
Clothing and shoes	26	6	15	11	55	9	43
Medical care	25	11	28	5	25	9	43
Housing	25	9	23	8	40	8	38
Water	20	6	15	2	10	12	57
Farming supplies	16	1	3	7	35	8	38
Causes of lack of basic necessities							
Income generation issues	74	34	85	20	100	20	95
Poor community infrastructure/facilities	50	25	63	11	55	14	67

Table 3. Stressors that exacerbate poverty

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Environmental stressors	49	21	53	17	85	11	52
Security, safety, and violence	44	31	78	10	50	3	14
Weak social capital	24	8	20	10	50	6	29
Untimed pregnancy	20	13	33	2	10	5	24
Death of a parent or guardian	12	8	20	4	20	0	0

Table 4. Impacts on functioning, health, and education

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Daily functioning	40	12	30	13	65	15	71
Health	76	36	90	19	95	21	100
Mental health	69	29	73	19	95	21	100
Physical health	61	24	60	18	90	19	90
Relational health	58	26	65	15	75	17	81
Education	42	15	38	11	55	16	76

Table 5. Negative and Positive coping strategies

Coping strategy	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		f	%	*f*	%	*f*	%
Negative coping	59	34	85	14	70	11	52
Risk-taking behaviors	52	34	85	10	50	8	38
Relating poorly	23	9	23	8	40	6	29
Positive coping	79	39	98	20	100	20	95
Problem-focused coping	70	33	83	19	95	18	86
Social coping	63	30	75	19	95	14	67
Spiritual coping	21	9	23	5	25	7	33
Preventive coping	18	16	40	2	10	0	0
Emotion-focused coping	13	8	20	4	20	1	5

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

	Page/line no(s).
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	2
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	4
Purpose or research question - Purpose of the study and specific objectives or questions	7
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	10
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	8/9
Context - Setting/site and salient contextual factors; rationale**	6/7; 8
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	8
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	7/8
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	8

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	10~~n/a~~
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	8
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	8
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	10
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	10

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	10/11
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	11

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	17
Limitations - Trustworthiness and limitations of findings	19

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	21
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	22

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388