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

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-027047
Article Type:	Research
Date Submitted by the Author:	03-Oct-2018
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Keywords:	QUALITATIVE RESEARCH, PUBLIC HEALTH, MENTAL HEALTH

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Manuscripts

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6 **A description of poverty-related stressors: A qualitative study in Ghana, Malawi, and**
7 **Tanzania**
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42 Terms: Poverty; Stress; Coping; Mental Health; Sub-Saharan Africa
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45 Word count: 3723

46 Number of tables: 7

47 Number of figures: 1

48 References: 37
49
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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

1
2
3 service of resource acquisition. Studies demonstrate that lack of food, poor housing, and
4
5 healthcare is associated with riskier sex, including partner concurrency, condomless sex, and
6
7 transactional sex.[10, 11] These behaviors lead to increased risk of sexually transmitted infection
8
9 and HIV.[3]
10

11
12 Limited qualitative inquiries have attempted to define stress and stressors in LMIC.
13
14 Studies designed to rapidly assess important community-defined problems within vulnerable
15
16 populations (e.g., conflict affected) within LMIC suggest that key stressors involve economic
17
18 conditions and social relationships [e.g., 12, 13]. Fewer studies were conducted within rural
19
20 agrarian settings in Sub-Saharan African countries. However, some studies set in these contexts
21
22 show that poor education, healthcare, and water and food scarcity are commonly reported.[14, 15]
23
24 Evidence also shows that food insecurity is a chronic stressor in the region and is closely linked
25
26 to poor mental health.[16-18] Research is needed to further contextualize stress within these
27
28 communities.
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32
33 The purpose of the current qualitative study was twofold. First, we aimed to investigate
34
35 the intersection of poverty and chronic stress in order to identify key stressors associated with
36
37 poverty. Second, we aimed to identify coping strategies used within this context to deal with
38
39 these stressors. The study focused specifically on adolescents and young adults, i.e. the age-
40
41 range during which many mental health problems first manifest [19] and may affect transitions to
42
43 adulthood.
44
45

46
47 We chose to investigate these questions within poor, agrarian communities in three
48
49 African countries: Ghana, Malawi, and Tanzania. Each of these communities experience chronic
50
51 poverty and have national large-scale cash transfer programmes aimed at poverty alleviation.[20,
52
53 21] This makes them ideal settings to gain insights into how communities conceptualize stress,
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1
2
3 which stressors are most salient within this context, and which types of stressors are likely to be
4
5 affected through poverty alleviation efforts.
6

7 **Materials and methods**

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10 Data were collected using in-depth interviews by local teams skilled in qualitative data
11
12 collection. Data collection took place in May, 2017 in Ghana, January, 2017 in Malawi, and
13
14 November, 2016 in Tanzania. These teams came from REPOA in Tanzania, The Centre for
15
16 Social Research at the University of Malawi, and Navrongo Health Research Centre in Ghana.
17
18 Training and piloting for the current study took place over 4 days in each country (two days for
19
20 training and one day each for pilot and debriefing) by UNICEF Innocenti Office of Research
21
22 technical staff (JdH, AP, LP). Trainings included a study overview, a refresher on qualitative
23
24 methods and research ethics, discussions on each question in the interview guide, consent/assent
25
26 processes, and role-playing. Modifications to help with the interview flow were made based on
27
28 interviewer feedback. Interview guides were translated into the local languages (Dagbani and
29
30 Gurune in Ghana, Chichewa in Malawi, and Swahili in Tanzania).
31
32
33

34
35 An interview guide was developed that asked the following questions:

36
37 *Please name all of the various events (difficulties, stressors) that occur in people's lives in your*
38
39 *community. Please focus on major or important events.*

40
41 *Please name all of the various challenges (difficulties, stressors) that occur in people's lives in*
42
43 *your community. Please focus on everyday challenges.*

44
45 *Please name all of the problems related to poverty that people in your community experience.*

46
47 *How do people deal with these most important challenges?*
48

49 For each event that was named, follow-up questions were asked about consequent
50
51 behaviors, thoughts, emotions, health, and coping mechanisms.
52

53 **Participants**

1
2
3 Participants were purposively sampled to ensure representation of stressors across sex
4 and age strata (adolescent/adult) within each village. In Malawi, 20 in-depth interviews were
5 conducted in Salima district from the Mkhwidzi Group Village Head in the Ndindi Traditional
6 Authority. In Tanzania, 40 in-depth interviews were conducted in two rural villages of Kisarawe
7 and Morogoro districts. In Ghana, 21 in-depth interviews were conducted in the Northern and
8 Upper East regions. All interviews took place in locations that protected participant privacy and
9 increased the participant comfort in answering questions. See Table 1, for an overview of age
10 and sex strata by country.
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21 ***Data Analysis***

22
23 Data were analyzed with NVivo 11 Plus [22] using thematic analysis.[23] Analysis began
24 with a process of immersion where each author read several transcripts from the first set of data
25 and noted initial thematic codes together. The rest of the analysis was conducted by the first and
26 second authors (BJH, MRG), with regular discussions with the other authors for their comments
27 and suggestions. We generated initial codes by coding text that discussed stressors and coping
28 strategies. For each code, we collated relevant text examples. We then collated codes into themes,
29 and when relevant, subthemes. We reviewed the themes vis-à-vis the coded extracts. This step
30 involved refining existing themes, creating new themes, and reviewing extracts to form coherent
31 patterns until we reached a fitting thematic map of our data. Lastly, in our synthesis of the
32 thematic analysis, we provided ample textual extracts balanced by themes, country, and strata.
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46 Ethical approval for the study was obtained from COSTECH in Tanzania, University of
47 Malawi ethics committee in Malawi and the ethics committee at Navrongo Health Research
48 Centre in Ghana.
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51
52

53 ***Patient and Public Involvement statement***

1
2
3 Patients were not involved in this research.
4

5 **Results**

6
7 The data showed participants experience poverty-related stressors that affect their health,
8 education, and security and safety. Non-poverty-related stressors aggravate the effects of
9
10 poverty-related stressors. Table 2 shows the frequency of reported stressors by country and strata.
11
12 Both poverty- and non-poverty-related stressors lead to positive and negative coping responses,
13
14 which in turn impact the stressors they experience.
15
16
17

18 *Poverty-related Stressors*

19
20 The main source of stress is poverty-related. All 81 participants cited at least one stressor
21
22 of this type. We grouped poverty-related stressors into two broad themes: lack of basic
23
24 necessities and issues related to income-generation.
25
26
27

28 *Lack of basic necessities.* Poverty results in lack of sufficient nutritious food and clean
29
30 water, illustrated by one participant:
31
32

33 Malawian, 16-year old female: “When one is hungry, you don’t find strength. It is food
34 that helps you. Sometimes, to fetch water you cannot manage, even to go to the farm, you
35 can’t manage, so food is important in one’s life.”
36

37
38 Other necessities included school-related expenses; clothing and shoes; and housing with
39
40 toilets, laundry supplies, suitable bedrooms; and, farming necessities including seed, fertilizers,
41
42 animals, tractors, and grinding mills. Participants also reported inadequate public transportation;
43
44 road infrastructure, markets, and police stations, along with access to electricity. Stress induced
45
46 by these difficulties affected interpersonal relationships.
47
48

49 Participants lack adequate medical care and resources to acquire needed medications.
50
51 Hospitals are inaccessible since they are far from their homes, as reported by one participant:
52
53

54 Malawian, 21-year old male: “Diseases, since they sometimes come in the middle of the
55 night, we wait till morning to look for transportation.”
56
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4 ***Income generation.*** Participants talked about income generation issues, as many have
5
6 physically-demanding jobs, such as farming, wood-cutting, and small-scale businesses, that
7
8 result in low and unstable revenues. Jobs are also scarce. Some girls and women from rural areas
9
10 of Ghana move to urban centers to work as porters in markets (i.e., kayayo). Additionally, some
11
12 community members in Malawi engage in short-term or casual jobs, called ganyu. These jobs
13
14 include clearing other people's land, carrying goods, and mopping floors, for which individuals
15
16 often receive in-kind compensation such as a plate of food.
17
18

19 20 ***Poverty-related Stressors Lead to Other Stressors***

21
22 Poverty-related stressors produce other stressors that impact on health, educational
23
24 opportunities, and security and safety.
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26

27 ***Health.*** We divided health into three areas: Mental, physical, and relational.
28

29 ***Mental health.*** The most common reactions are feeling depressed and ashamed, which
30
31 leads to withdrawal and isolation.
32
33

34 Ghanaian, 16-year old female: "Sometimes I feel like crying and I will be thinking ... I
35
36 will be thinking about how my parents are not able to get my needs for me and tears will
37
38 be dropping from my eyes."

39 Others mentioned anxiety, worry, and fear about meeting basic needs:
40

41 Ghanaian, 24-year old male: "When we farm, the yields are not always enough and we do
42
43 not also have the money. And now that we do not have it, what will we do?"

44 Malawian, 17-year old male: "You can get thin because of thinking too much ... You
45
46 think about the future and wonder if you will manage alright."
47

48 Some participants reported impacts on functioning.
49

50 Tanzanian, 17-year old male: "Work performance will go down and the possibility of
51
52 underperforming that work increases because when you think of many challenges you're
53
54 facing like loss of parents, the motivation to work hard will not be there again."

55 ***Physical health.*** Poverty-related stressors lead to physical illnesses. The signs of stress
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3 manifest by loss of weight, looking unclean, not washing, and appearing older. Poor
4
5 infrastructure and lack of clean water lead to gastrointestinal diseases, and vector-borne disease.
6
7 Malnutrition and stunted growth also occur due to lack of nourishment. High blood pressure also
8
9 occurs, which some participants attribute to emotional and cognitive health problems. Accidents
10
11 that lead to injuries are common, such as riding feeble carts to fetch water and experiencing
12
13 motor accidents when driving *bodaboda* (motorcycle taxis common in East Africa) or bicycles.
14
15 The absence of safe sources of water could lead to children falling into wells.
16
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19 ***Relational health.*** Interpersonal conflicts are triggered by poverty related stress:
20

21
22 Tanzanian, 20-year old male: “Sometimes you can come back home very angry because
23
24 you have not succeeded to get money, you can quarrel and fight with your wife because
25
26 you are very angry and don’t like to talk to anybody including your wife.”

26
27 Participants prioritize their personal and familial needs, but they also report neglecting
28
29 peers and their broader community; living in impoverished communities translates to fewer
30
31 chances of receiving help from people who are already having a hard time meeting individual
32
33 needs. Poverty-related stressors also affect social engagement.
34

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36 ***Education-related stressors.*** Students find difficulty attending school and studying due to
37
38 lack of supplies and the long distance to school, and school disruption due work demands.
39

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41 ***Security, safety and violence stressors.*** Participants mentioned physical assault, theft,
42
43 and intimate partner violence. Travelling long distances to get water makes people more
44
45 vulnerable to sexual assault. Women, in particular, are at risk of both physical and sexual assault:
46

47
48 Tanzanian, 16-year old female: “There is a man who hides and waits for girls who are
49
50 going there to fetch water to rape them. When he sees a girl coming, he will call her and
51
52 if she refuses, he will use cutlass to attack the girl.... he attacked one girl and cut her
53
54 fingers.”

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53 ***Non-poverty-related Stressors Exacerbate the effects of Poverty-related Stressors***
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3 Non-poverty-related stressors further exacerbate the pernicious effects of poverty-related
4 stressors. Non-poverty-related stressors include environmental stressors, untimed pregnancy, and
5 death, especially of a parent or guardian. Similar to poverty-related stressors, these lead to
6 security and safety, health, and education-related stressors.
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12 ***Environmental stressors.*** There are three types of environmental stressors. First are
13 extreme weather conditions like drought and flooding. Second are land-related problems, such as
14 having land of poor quality. Third are animal-related losses. Man-made losses occur when crop
15 or bush burning spreads before harvest. These stressors lead to poverty-related problems as they
16 affect livelihoods and lead to food and water shortage and an increase in community crime.
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24 ***Untimed pregnancy.*** Schooling disruptions, difficulty finding employment, and
25 additional expenses related to childcare as associated with untimed pregnancy.
26
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28 Ghanaian, 19-year old, female: “When they are going to school and they cannot get
29 money, and they get a boy who can give them money, they start dating the guy and
30 eventually get pregnant. The problem is, if their parents had the money to take care of
31 them, they wouldn’t have followed the guy in the first place.”
32
33

34 Some women experience relational health problems due to arguments or abandonment by
35 partners, family members, or peers, and they are targets of gossip in their community. Untimed
36 pregnancy is also associated with mental health issues.
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41 ***Death of a parent or guardian.*** Death of a parent or guardian is associated with physical
42 health problems like weight loss and headaches and school discontinuation.
43
44

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

46
47 Participants reported engaging in various coping responses, both negative and positive.
48 Poverty limits the repertoire of positive coping responses that can be utilized to alleviate
49 stressors. Poverty is thus experienced not just in terms of lack of resources but also in terms of
50 constraints in the availability or access to potential resources, including coping behaviors.
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3 **Negative coping.** Risk-taking can occur through stealing in order to gain resources. Risk-
4 taking also manifests through sexual behaviors. Unsafe or transactional sex and partner
5 concurrency exposes women to untimed pregnancy or contracting sexually transmitted infections
6 or HIV. Substance misuse as coping further diminishes finances and the capacity to work, family
7 neglect, and intimate partner violence. It can lead to engagement in transactional sex or stealing
8 to have money to buy drugs or alcohol. Poor social coping may take the form of begging for
9 resources from strangers, classmates, or neighbors. Others abandon their family. Some abandon
10 their partners who then become single parents, whereas children are left with relatives.

11
12 **Positive coping.** Seventy-eight participants reported at least one of five positive coping
13 responses.

14
15 First, participants use problem-focused coping, mainly by working hard, starting
16 businesses, or changing jobs. Included here are strategies related to planning for the future, like
17 investing or getting insurance and saving money or crops; going to school or sending children to
18 school; finding other ways to meet needs like helping improve infrastructure in their
19 neighborhood and finding new sources of employment; and caring for their health, like seeking
20 health care and minimizing chances of sexual health problems by having one partner and
21 learning about safe sex, family planning, and HIV.

22
23 Second, participants use social coping by providing help and advice to others, seeking
24 help or opening up to others, improving or amending relationships, and paying off debts.

25
26 Third, participants utilize spiritual coping by turning to God. Fourth, participants engage
27 in preventive coping by avoiding problematic people, being cautious in public places, driving
28 safely, and avoiding risky behaviors. Lastly, participants engage in emotion-focused coping, by
29 having a positive attitude, being persistent in rising above their problems, and tolerating the
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3 issues they experience.
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5 **Discussion**

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8 In this qualitative study, we contextualized key stressors, their consequences, and coping
9
10 behaviors within poor Sub-Saharan African agrarian communities in Ghana, Malawi, and
11
12 Tanzania. The model that emerged from this study (depicted in Figure 1) involved two main
13
14 sources of stress. The first key stressor highlighted across settings was poverty, characterized by
15
16 lacking basic needs and difficulty in income generation. This finding, ubiquitous across
17
18 interviews, highlighted the degree to which economic conditions predominate the local
19
20 conceptualization of stress. The second source of stress was non-poverty related (e.g., droughts).
21
22 Coping processes were described as bounded within the economic and resource constraints in the
23
24 communities. Poverty restricts the coping repertoires available within the community.
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28
29 Importantly, the current model suggests a feedback loop whereby poor coping leads to
30
31 further stressors, which in turn can be exacerbated by continued poor coping. This is similar to
32
33 the loss spiral concept in conservation of resources theory,[24] which states that losses to
34
35 economic resources and other resources can beget further losses. With regard to mental health in
36
37 particular, previous reviews document the association between mental ill health and poverty.[8]
38
39 In this study, poverty was associated with losses in health status, along with educational and
40
41 economic advancement opportunity. Non-poverty stressors modify the effects of poverty and
42
43 poverty-related stressors. Stress related to poor weather conditions, poor education, and safety
44
45 and security, all intensify the impact of economic challenges such that there is a multiplicative
46
47 effect of these other stressors on economic related stressors.
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52 Intimate partner violence was a key finding linked to poverty-related stress, and this is
53
54 supported by national statistics. For example, in Ghana, 41 percent of women experience
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3 intimate partner violence in their lifetime, and rates were even higher (64 percent) among women
4
5 in rural, poor households in northern Ghana, similar to the area where are current sample comes
6
7 from.[25, 26] Further, in Malawi and Tanzania, 42 and 50 percent of ever-married women,
8
9 respectively, have experienced physical, sexual or emotional intimate partner violence.[27, 28]
10
11

12 Key coping processes were highlighted by participants. Negative coping strategies
13
14 involved risk-taking behaviors including stealing and transactional sex. These lead to further
15
16 stressors including sexually transmitted infections (STIs) and unplanned pregnancy, which sets
17
18 up a continuing cycle of resource depletion, stress, and unsafe health practices. This is supported
19
20 by previous research linking risky behaviors, STIs, and poverty.[29] Engaging in avoidance
21
22 coping included using alcohol and other drugs, which in turn led to relational health challenges
23
24 and GBV. These findings fit within a syndemic conceptualization where substance abuse,
25
26 violence, and sexually transmitted infections are mutually enhancing and co-occur,[30] driven by
27
28 poor economic conditions. Findings also highlight how adolescent girls often find themselves
29
30 uniquely vulnerable to stressors related to the intersection of poverty and gender, including early
31
32 pregnancy, school drop-out and GBV.
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35
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37 Despite their challenging circumstances, participants also used healthy and positive
38
39 coping strategies. Problem-focused coping strategies revolved largely around work, contingency
40
41 planning for crop and other losses, and caring for their health. Social networks were also an
42
43 important source of coping support, but this resource is bounded by the availability of people
44
45 who possess the capacity to provide the specific support needed.[31] Poverty drove partner and
46
47 child abandonment, suggesting that when resources are lacking, familial and kinship network
48
49 members are seen as a liability for survival.
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53 The current findings have implications for intervention programs within these contexts.
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3 Given the emergence of poverty as a key underlying factor, and linkages between health, stress,
4 and poverty,[8, 32] cash transfer interventions are hypothesized to lead to reductions in stress:[33]
5
6 however, the empirical evidence is mixed.[33, 34] While a study in Kenya did find that cash
7
8 transfers reduced self-perceived stress (but not cortisol, a biological marker for stress),[35]
9
10 Hjelms et al. [33] found that two unconditional cash transfer programs in Zambia were successful
11
12 at reducing poverty but had no impacts on self-perceived stress.
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16
17 The current study should be viewed in light of several limitations. First, the study was not
18
19 able to adequately differentiate between chronic and short-term stressors. All stressors were
20
21 reported as chronic by study participants. This limits our understanding of how daily hassles
22
23 interact to produce stress within the community. Second, we relied on a small sample which may
24
25 not provide generalizable information about their entire village or community. Caution should be
26
27 exercised when viewing this data as it may present an overly negative portrayal of life within
28
29 these communities. Third, the age range of our participants may not reflect the breadth of
30
31 stressors experienced by older community members. Finally, we cannot rule out the possibility
32
33 of seasonal variation in the salience of stressors experienced in these villages given their agrarian
34
35 nature. We did ask about stressors throughout the year in order to mitigate this concern.
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40 Our findings suggest that cash transfer and other poverty alleviation programs could
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42 reduce mental health and physical health problems, particularly as they relate to those stressors
43
44 that have direct relationships with poverty. The current study provides evidence of dual direct
45
46 pathways between stressors and health outcomes. This provides greater specificity for the
47
48 pathways upon which economic interventions are predicted to be effective. Poverty alleviation
49
50 programs may also promote resiliency, reducing the need for negative coping strategies in the
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52 face of shocks and non-poverty stressors such as droughts and floods.[36] However, despite their
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3 ability to mitigate the impacts of poverty and feedback loops related to coping, these programs
4
5 are unlikely to affect the occurrence of non-poverty related stressors in the first place. Nor do
6
7 they always address related structural factors related to poverty, such as lack of access to schools
8
9 and quality health facilities, which were often mentioned by respondents.
10

11
12 The mixed evidence from cash transfer interventions and the results from our current
13
14 study suggest the need for new quantitative measures of stress. Most stress studies in LMIC rely
15
16 on the Perceived Stress Scale, which was validated among a largely white, educated population
17
18 in the United States and was intended for use among people with at least a junior high education
19
20 level.[37] Outside this population, this scale may not capture important features of stress. Any
21
22 new stress scale should differentiate between poverty and non-poverty-related stressors to enable
23
24 a more nuanced view of the source and type of stressors experienced. Key aspects of income
25
26 generation, food and water insecurity, relational factors, and exposure to violence would be a
27
28 specific measurement of stress within agrarian regions of African countries experiencing
29
30 ongoing poverty.
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35 In summary, we described stressors in rural, agrarian populations in sub-Saharan African
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37 and respondents' descriptions of how they experience and cope with these stressors. The salience
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39 of poverty-related stressors was reflected in these descriptions, and suggests that stress should be
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41 considered in understanding pathways between poverty alleviation programs and health and
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43 general well-being, and that adequate measures of stress may need to be further contextualized
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45 and adapted to these settings.
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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.

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Table 2a. Summary of stressors in Tanzania.

Stressor	Total (n=40)		By sex		By age	
	<i>f</i>	%	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						

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3	Environmental stressors	21	52.50	15	6	10	11
4							
5	Untimely pregnancy	15	37.50	2	13	9	6
6							
7	Death of a parent or guardian	8	20.00	1	7	5	3
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For peer review only

Table 2b. Summary of stressors in Malawi.

Stressor	Total (n=20)		By sex		By age	
	<i>f</i>	%	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						

1						
2						
3	Environmental stressors	17	85.00	8	9	8
4						9
5	Untimely pregnancy	2	10.00	1	1	1
6						1
7	Death of a parent or guardian	4	20.00	2	2	2
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Table 2c. Summary of stressors mentioned in Ghana.

Stressor	Total (n=21)		By sex		By age	
	<i>f</i>	%	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						

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3	Environmental stressors	11	52.38	8	3	6	5
4							
5	Untimely pregnancy	5	23.81	1	4	3	2
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7	Death of a parent or guardian	0	0.00	0	0	0	0
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Table 3a. Summary of coping strategies mentioned in Tanzania.

Coping strategy	Total (n=40)		By sex		By age	
	<i>f</i>	%	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

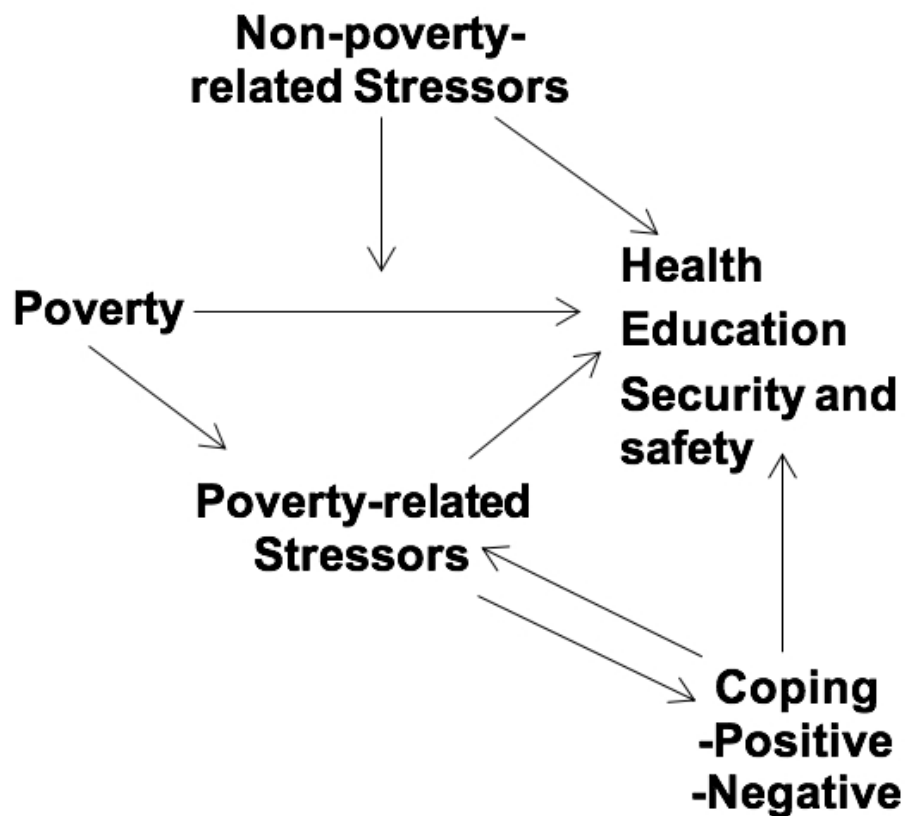
Table 3b. Summary of coping strategies mentioned in Malawi.

Coping strategy	Total (n=20)		By sex		By age	
	<i>f</i>	%	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

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

Coping strategy	Total (n=21)		By sex		By age	
	<i>f</i>	%	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



204x189mm (72 x 72 DPI)

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

BMJ Open

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

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-027047.R1
Article Type:	Research
Date Submitted by the Author:	12-Feb-2019
Complete List of Authors:	Hall, Brian; University of Macau, ; Johns Hopkins University Bloomberg School of Public Health, Garabiles, Melissa; Ateneo de Manila de Hoop, Jacobus; UNICEF Office of Research Innocenti Pereira, Audrey; UNICEF Office of Research-Innocenti, Florence Prencipe, Leah; UNICEF Office of Research Innocenti Florence Palermo, Tia; UNICEF Office of Research Innocenti
Primary Subject Heading:	Global health
Secondary Subject Heading:	Mental health
Keywords:	QUALITATIVE RESEARCH, PUBLIC HEALTH, MENTAL HEALTH

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5 **Adolescent and young adult community perspectives on poverty related stressors: A**
6 **qualitative study in Ghana, Malawi, and Tanzania**
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41 Keywords: Poverty; Stress; Coping; Mental Health; Sub-Saharan Africa
42
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44 Word count: 4888
45 Number of tables: 5
46 References: 44
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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 health¹ 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

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3 argued that the possession of resources (e.g., economic, material) determines whether a person
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5 can deal effectively with the demands of a stressor. According to the Conservation of Resources
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7 Theory, the ability to overcome stressors is predicated on the availability of needed resources
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9 that can be mobilized to overcome adverse events.¹⁰ Further, losses and gains to resources are
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11 central to how a person experiences stress.
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15 Within LMIC, chronic poverty largely shapes the availability of resources to mobilize,
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17 and may set boundaries around adaptive coping processes.¹¹ Active and problem focused coping
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19 strategies are associated with better health outcomes but are conditioned on the ability of a
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21 community to actively change aspects of their environment.^{12,13} In contrast, avoidant coping, or
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23 emotion focused coping, while less likely to alleviate the stressor directly, are often used when
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25 more active strategies are not possible. Within communities experiencing chronic poverty, these
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27 are often employed when environments cannot be changed.^{14,15}
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31 Communities cope with stressors by engaging in culturally meaningful strategies, to
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33 achieve goals and outcomes that are consonant with cultural values and norms. What constitutes
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35 a stressor and how it is experienced is a function of context and culture.¹⁶ The cultural context
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37 largely influences the types of stressors encountered, the degree to which stressors are associated
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39 with distress, the coping strategies that are selected, and different mechanisms available within
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41 the culture to cope (e.g., social support). Some coping strategies may lead to additional disease
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43 burden. For example, poverty can lead to sexual risk-taking behaviors in service of resource
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45 acquisition. Studies demonstrate that lack of food, poor housing, and healthcare is associated
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47 with riskier sex, including partner concurrency, condomless sex, and transactional sex.^{17,18} These
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49 behaviors lead to increased risk of sexually transmitted infection and HIV.³
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3 Limited qualitative inquiries have attempted to define stress and stressors in LMIC.
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5 Studies designed to rapidly assess important community-defined problems within vulnerable
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7 populations (e.g., conflict affected) within LMIC suggest that key stressors involve economic
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9 conditions and social relationships^{19,20} Limited research was conducted within rural agrarian
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11 settings in Sub-Saharan African countries. The results from these investigations show that poor
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13 education, healthcare, and water and food scarcity as commonly reported.^{21,22} Evidence also
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15 showed that food insecurity is closely linked to poor mental health.²³⁻²⁵ Additional studies are
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17 needed that focuses on defining stress within LMIC, to inform the measurement of stress within
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19 these contexts, since stress is theorized as a critical mediating pathway through which cash
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21 transfer interventions are effective.²⁶ However, previous impact evaluations of cash transfers
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23 failed to detect impacts on stress, measured by the Cohen's Stress Scale,²⁷ suggesting that
24
25 inadequate conceptualization or measurement of stress could be one factor accounting for this
26
27 unexpected finding.²⁶
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33 We chose to qualitatively investigate descriptions of key stressors within poor, agrarian
34
35 communities in three African countries: Ghana, Malawi, and Tanzania. Each of these
36
37 communities experience chronic poverty and have national large-scale cash transfer programmes
38
39 aimed at poverty alleviation.^{28,29} This makes these ideal settings to gain insights into how
40
41 communities conceptualize stress, which stressors are most salient within this context, and which
42
43 types of stressors are likely to be affected through poverty alleviation efforts. This descriptive
44
45 qualitative study focused specifically on adolescents and young adults, which is the age-range
46
47 during which many mental health problems first manifest³⁰ and may affect transitions to
48
49 adulthood. Indeed, in previous impact evaluations, the prevalence of depression in Tanzania was
50
51 63% and 47% in Malawi.
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3 These three communities are similar but different enough to aid in developing an
4
5 understanding of stress that may generalize across multiple contexts. There are several
6
7 contextual and historical factors about these contexts worth noting. First, the prevalence of girls
8
9 married by the age of 18 in Ghana, Malawi, and Tanzania was 21%, 42%, and 31%.³¹ Second,
10
11 there are uneven secondary school completion rates, with 70%, 38% and 26% gross secondary
12
13 school enrolments in Ghana, Malawi and Tanzania according to World Bank 2017 data. Third,
14
15 all three countries were previously governed by the British. They gained independence in: 1957
16
17 Ghana; 1964 Malawi; 1964 Tanzania (merger of Tanganyika and Zanzibar). In 2017, the World
18
19 Bank ranked Malawi and Tanzania as lower income countries and Ghana as a lower middle-
20
21 income country. Fourth, each country has large rural population according to the World Bank:
22
23 45% Ghana, 83% Malawi, and 67% Tanzania. Fifth, each country has a large informal sector
24
25 according to the World Bank Enterprise Surveys. In Ghana, Malawi and Tanzania, respectively
26
27 69%, 72%, and 73% of firms compete against unregistered or informal firms.
28
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32

33 The purpose of the current qualitative study was twofold. First, we aimed to investigate
34
35 the intersection of poverty and chronic stress in order to identify key stressors associated with
36
37 poverty. Second, we aimed to identify coping strategies used within this context to deal with
38
39 these stressors.
40
41

42 Methods

43 *Study design*

44
45 This study was a descriptive qualitative study utilizing in-depth interviews. In all countries,
46
47 adults provided informed consent for their own participation and consent for interviews with
48
49 minors. Minors (<18 years old) provided assent, following standard ethnical procedures. Ethical
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3 approval for the study was obtained from COSTECH in Tanzania, University of Malawi ethics
4 committee in Malawi and the ethics committee at Navrongo Health Research Centre in Ghana.
5
6

7 *Participants*

8
9
10 The focus of the study was on rural areas in Tanzania, Ghana, and Malawi. Participants were
11 purposively sampled to ensure representation of stressors across sex and age strata
12 (adolescent/adult) within each village. The age range for adolescents was from 15 to 18, and
13 young adults were 18 and 24. In Malawi, 20 in-depth interviews were conducted in Salima
14 district from the Mkhwidzi Group Village Head in the Ndindi Traditional Authority. In
15 Tanzania, 40 in-depth interviews were conducted in two rural villages of Kisarawe and
16 Morogoro districts. In Ghana, 21 in-depth interviews were conducted in the Northern and Upper
17 East regions. Survey firms were asked to select villages that were reasonably representative of
18 the rural population in the country. Within villages, senior village members assisted in
19 recruitment by selecting interviewees by age and sex strata. All interviews took place in
20 locations that protected participant privacy and increased the participant comfort in answering
21 questions. See Table 1, for an overview of age and sex strata by country.
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37 *Interviews*

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40 Data were collected using in-depth interviews by local teams skilled in qualitative data
41 collection. Data collection took place in May, 2017 in Ghana, January, 2017 in Malawi, and
42 November, 2016 in Tanzania. These teams came from REPOA in Tanzania, The Centre for
43 Social Research at the University of Malawi, and Navrongo Health Research Centre in Ghana.
44
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48
49 These research teams were not known to community members before the interviews took place.
50
51
52 Some participants may have been disinclined to share their information since interviewers were
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3 unfamiliar to them. Interviewers were matched to interviewees by sex to mitigate bias in the
4
5 interviews.
6

7
8 Training and piloting for the current study took place over 4 days in each country (two
9
10 days for training and one day each for pilot and debriefing) by UNICEF Innocenti Office of
11
12 Research technical staff (JdH, AP, LP). Trainings included a study overview, a refresher on
13
14 qualitative methods and research ethics, discussions on each question in the interview guide,
15
16 consent/assent processes, and role-playing. Modifications to help with the interview flow were
17
18 made based on interviewer feedback. Interview guides were translated into the local languages
19
20 (Dagbani and Gurune in Ghana, Chichewa in Malawi, and Swahili in Tanzania).
21
22

23
24 An interview guide was developed that asked the following questions:
25

26 *Please name all of the various events (difficulties, stressors) that occur in people's lives in your*
27 *community. Please focus on major or important events.*
28

29 *Please name all of the various challenges (difficulties, stressors) that occur in people's lives in*
30 *your community. Please focus on everyday challenges.*
31
32

33 *Please name all of the problems related to poverty that people in your community experience.*
34

35 *How do people deal with these most important challenges?*
36
37

38 Participants were asked to report about their community rather than personal experiences,
39
40 to reduce potential the concealment of stressors that may evoke embarrassment or stigma. For
41
42 each event that was named, follow-up questions were asked about consequent behaviors,
43
44 thoughts, emotions, and coping mechanisms. These follow-up probes were decided during field
45
46 training by the interviewers and applied during interviews using local languages. All interviews
47
48 were recorded and transcribed first into the local language, and then translated once into English.
49
50

51 *Qualitative Data Analysis*
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3 Data were analyzed with NVivo 11 Plus³² using inductive qualitative thematic analysis
4 following a six-phase process.³³ We analyzed data from Tanzania first, then created a coding
5 frame. We then analyzed data from Malawi then Ghana using the coding frame. We
6
7 accommodated new themes by adding new codes into the coding frame. Analysis began with a
8
9 process of immersion where each author read several transcripts from the first set of data and
10
11 noted initial thematic codes together. The rest of the analysis was conducted by the first and
12
13 second authors (BJH, MRG), with regular discussions with the other authors for their comments
14
15 and suggestions. We generated initial codes by coding text that discussed stressors and coping
16
17 strategies. For each code, we collated relevant text examples. We then collated codes into
18
19 themes, and when relevant, subthemes. We reviewed the themes vis-à-vis the coded extracts.
20
21 This step involved refining existing themes, creating new themes, and reviewing extracts to form
22
23 coherent patterns until we reached a fitting thematic map of our data. Lastly, in our synthesis of
24
25 the thematic analysis, we provided ample textual extracts balanced by themes, country, and
26
27 strata.
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34 *Patient and Public Involvement statement*

35 Patients were not involved in this research.
36
37

38 **Results**

39
40 We organize the results in a broad framework encompassing 1) stressors related to
41
42 poverty and the lack of basic necessities, 2) additional stressors that worsen poverty-related
43
44 stress, 3) impacts of these stressors on functioning, health, and well-being, and 4) coping
45
46 strategies used by community members. Participants report stress related to the lack of basic
47
48 necessities, which is due to income generation issues and poor community infrastructure and
49
50 facilities. Additional stressors, including environmental stressors; safety; weak social capital;
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3 untimed pregnancy; and death of a parent or guardian, worsened poverty-related stress. These
4 stressors were linked to difficulties in daily functioning, health, well-being, and education.
5
6 Coping repertoires were bound due to constraints of poverty, and negative and positive coping
7
8 behaviors were identified.
9

10 **Poverty-related stress and the lack of basic necessities**

11
12 Participants reported lacking basic necessities as key stressors, which is poverty-related.
13
14 These stressors are presented in Table 2.
15

16
17 The lack of food was a key issue mentioned. One participant said:

18
19 Ghanaian, 17-year old female: “About the food, it is a pity. I will look at my father, think
20
21 and wish that I have money to buy enough food for us to eat in the house.”
22
23

24
25 Other necessities included school-related expenses (mentioned twice as often by younger
26
27 participants), clothing and shoes, proper housing, and medical care (mentioned almost twice as
28
29 often by older participants).
30

31
32 They lack necessities due to limitations in income generation. Many have physically-
33
34 demanding jobs that result in low and unstable revenues. This is illustrated in this excerpt:

35
36 Tanzanian, 20-year old male: “Farming is like gambling: you can get harvest or not get
37
38 any. It is a game of chance. You spend a lot of money but end up getting nothing.”
39

40
41 Some women from rural areas of Ghana move to urban centers to work as porters in
42
43 markets (i.e., *kayayo*). Some community members in Malawi engage in short-term or casual jobs,
44
45 called *ganyu*. These jobs include clearing others’ land, carrying goods, and mopping floors. They
46
47 often receive in-kind compensation like food.
48

49
50 Malawian, 15-year old female: “Some when they feel they need to go to school still, they
51
52 work hard on *ganyu* and other things.”
53

54
55 Lack of necessities is also due to poor community infrastructure and facilities, such as
56
57 tractors and grinding mills for farming; public transportation; roads, markets, and police stations,
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3 along with access to electricity and water. Schools and hospitals are distant and at times
4
5 inaccessible. One participant reported:

6
7
8 Malawian, 21-year old male: “Diseases, since they sometimes come in the middle of the
9 night, we wait till morning to look for transportation.”

10 11 **Additional stressors that exacerbate poverty-related stress**

12
13 Additional stressors exacerbate poverty, making it more difficult to resolve problems
14
15 (See Table 3). These include: environmental stressors; security, safety, and violence; weak social
16
17 capital; untimed pregnancy; and death of parent or guardian. Negative coping also hinders stress
18
19 reduction.
20
21

22
23 ***Environmental stressors.*** Environmental events were discussed, especially by Malawians
24
25 and by male participants (31 vs. 18 mentions). This includes extreme weather conditions like
26
27 drought and flooding.
28

29
30 Ghanaian, 16-year old, male: “... when we farm and there happens to be flooding in that
31 year, it will be difficult to get enough food especially maize as our staple food.”
32

33
34 There are land-related problems (i.e., land of poor quality) and animal-related losses.
35
36 Man-made losses occur when crop or bush-burning spreads before harvest, which destroy soil
37
38 fertility.
39

40
41 Ghanaian, 17-year old male: “When he doesn’t harvest on time and every other field
42 around him is harvested, they burn the place and it finally affects the one left.”

43
44 ***Safety-related stressors.*** Participants mentioned physical assault, theft, and intimate
45
46 partner violence. Travelling long distances to get water makes people vulnerable to sexual
47
48 assault. The young and women, in particular, are at risk of both physical and sexual assault:
49

50
51 Tanzanian, 16-year old female: “There is a man who hides and waits for girls who are
52 going there to fetch water to rape them. When he sees a girl coming, he will call her and
53 if she refuses, he will use cutlass [*a slashing sword*] to attack the girl.... he attacked one
54 girl and cut her fingers.”
55
56
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3 ***Weak social capital.*** Living in impoverished communities translates to fewer chances of
4 giving and receiving help from people who are already having a hard time meeting individual
5 needs. Participants would rather prioritize their personal and familial needs.
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7
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9

10 Malawian, 21-year old female: “Everyone looks at their problems in their household, that
11 even when they have a pail of flour, they cannot get and share. Helping each other stops
12 because everyone does their own thing.”
13

14 ***Untimed pregnancy.*** School disruptions, difficulty finding employment, and childcare
15 expenses are associated with untimed pregnancy, which was mentioned more frequently by
16 females than males (16 vs. 4 times).
17
18
19
20

21 Ghanaian, 19-year old, female: “... they get a boy who can give them money, they start
22 dating the guy and eventually get pregnant. The problem is, if their parents had the
23 money to take care of them, they wouldn’t have followed the guy in the first place.”
24
25

26 Some women experience relational health problems due to arguments or abandonment by
27 partners, family members, or peers, and they are targets of gossip in their community. Untimed
28 pregnancy is also associated with mental health issues.
29
30
31
32

33 Tanzanian, 18-year old, female: “The thoughts of why questions, why my husband has
34 left me, wondering what is wrong with me, why life has to be this way, and for major
35 challenges one just gets thoughts of, thinking of giving up and not knowing what to do.
36 Start to think that everything has fallen apart.”
37
38

39 ***Death of parent or guardian.*** Death of parent or guardian results to loss of care and
40 support. It is also associated with weight loss and headaches, mental health problems, and school
41 discontinuation.
42
43
44

45 Tanzanian, 17-year old female: “Those without parents, they will be thinking how they can
46 get food and sustain themselves. They face very difficult conditions, sometimes they sit
47 down and cry.”
48
49

50 ***Impact on functioning, health, and education***

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3 Lack of necessities, income generation issues, and poor infrastructure and facilities make
4 people vulnerable to more stressors impact daily functioning, health, well-being, and educational
5 opportunities (See Table 4).
6
7

8
9
10 It becomes tougher to work and be productive as lack of nourishment depletes energy,
11
12 whereas poor infrastructure restricts mobility:
13

14
15 Ghanaian, 28-year old male: “If you did not eat how can you work? You would be there
16 thinking about food and not about the work you are even supposed to do.”
17

18 Physical health is undermined. Signs of stress manifest by weight loss, looking unclean,
19
20 not washing, and appearing older. A participant said:
21

22
23 Malawian, 23-year old female: “... one gets affected and say, “The way I am looking, do
24 I look like a human being or what? What should I do to make myself look like the way
25 my friends look?””
26

27 Poor infrastructure and lack of clean water lead to gastrointestinal diseases and vector-
28 borne disease. Malnutrition and stunted growth occur due to lack of nourishment. High blood
29 pressure also occurs, which some attribute to mental health problems. Accidents that lead to
30 injuries are common, such as riding feeble carts to fetch water and driving *bodaboda*
31 (motorcycle taxis common in East Africa) or bicycles.
32
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38 Malawian, 21-year old female: “You may have diarrhea, since you picked something bad
39 to eat.”
40

41
42 In terms of well-being, the most common are feeling depressed and ashamed, which leads
43
44 to withdrawal and isolation.
45

46
47 Ghanaian, 16-year old female: “Sometimes I feel like crying ... I will be thinking about
48 how my parents are not able to get my needs for me and tears will be dropping from my
49 eyes.”
50

51 Others mentioned anxiety, worry, and fear about meeting basic needs:
52

53
54 Malawian, 17-year old male: “You can get thin because of thinking too much ... You
55 think about the future and wonder if you will manage alright.”
56
57

1
2
3 Relational health is also affected. They displace the stress they experience to others. They
4
5 do not socialize much because they have no money to spend, feel tired or sick, or are
6
7 preoccupied with resolving or thinking about their problems:
8
9

10 Tanzanian, 20-year old male: “Sometimes you can come back home very angry because
11 you have not succeeded to get money, you can quarrel and fight with your wife because
12 you are very angry and don’t like to talk to anybody including your wife.”
13

14 Ghanaian, female (>18): “One has to go to other communities to grind and if at the time
15 you have to go to mill and there is any social event in the community, the person cannot
16 attend both.”
17

18
19 Lastly, students find difficulty attending school and studying due to lack of supplies and
20
21 distance needed to travel. There are students whose studies get disrupted because they work:
22

23 Tanzanian, 17-year old male: “... pupils absent themselves from going to school as they
24 opt to work as laborers so that they can earn some money.”
25
26

27 Coping responses to stress

28
29 **Negative and positive coping strategies were reported by participants (see Table 5.).**

30
31 **Negative coping.** Poverty is also experienced in terms of constraints in availability or access to
32
33 coping behaviors. Some resort to risk-taking or relating poorly with others.
34
35

36 Risk-taking occurs through stealing to gain resources. Risk-taking also manifests through
37
38 sexual behaviors. Unsafe or transactional sex and partner concurrency exposes women to
39
40 untimed pregnancy or contracting sexually transmitted infections or HIV. Substance misuse as
41
42 coping further diminishes finances and capacity to work, family neglect, and intimate partner
43
44 violence. It can lead to engagement in transactional sex or stealing to have money to buy drugs
45
46 or alcohol.
47
48

49
50 Risk-taking was mentioned more frequently by Tanzania participants:
51

52 Tanzanian, 17-year old male: “Some engage in theft because they don’t have anything to
53 support their family ... you can decide to steal some jackfruits and eat.”
54
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3 Tanzanian, 17-year old female: “The girl was nine months pregnant but still sleeps with
4 men so that she can have something to eat.”
5
6

7 Others abandon their family. Some abandon their partners who then become single
8
9 parents, whereas children are left with relatives.
10

11 Malawian, 19-year old male: “Because you lack food, you suffer at home. Sometimes it’s
12 the wife who runs away from you, like, “I’m gone,” because a person lacks food.”
13
14

15 **Positive coping.** Five positive coping responses were discussed by participants.
16

17 First is problem-focused coping, including working hard, starting a business, or changing
18 jobs. Included is planning for the future, like investing and saving money or crops; going to
19 school or sending children to school; helping improve community infrastructure; finding
20 additional employment; and caring for their health.
21
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23
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25
26 Ghanaian, 15-year old male: “They go early to the bushes to handpick shea nuts before
27 going to school ... that is what they will sell to be able to buy some of those things.”
28
29

30 Second is social coping by providing help and advice to others, seeking help or opening
31 up to others, improving relationships, and paying off debts.
32
33

34 Third is spiritual coping by turning to God.
35

36 Fourth is preventive coping by avoiding problematic people, being cautious in public
37 places, driving safely, and avoiding risky behaviors.
38
39
40

41 Last is emotion-focused coping, by being positive, being persistent, and tolerating their
42 situation.
43
44

45 Malawian, 21-year old male: “The person thinks deeply, like these things that I have found, they
46 shouldn’t elude me in a short time, no. So, the person works hard, with the intention of adding
47 more to it.”
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52 **Discussion**

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

23
24 Intimate partner violence was a key finding linked to poverty-related stress, and this is
25 supported by national statistics. For example, in Ghana, 41 percent of women experience
26 intimate partner violence in their lifetime, and rates were even higher (64 percent) among women

1
2
3 in rural, poor households in northern Ghana, similar to the area where the current sample comes
4 from.^{35,36} Further, in Malawi and Tanzania, 42 and 50 percent of ever-married women,
5
6 respectively, have experienced physical, sexual or emotional intimate partner violence.^{37,38}
7
8
9

10 Key coping processes were highlighted by participants. Negative coping strategies
11 involved risk-taking behaviors including stealing and transactional sex. These lead to further
12 stressors including sexually transmitted infections (STIs) and unplanned pregnancy, which sets
13 up a continuing cycle of resource depletion, stress, and unsafe health practices. This is supported
14 by previous research linking risky behaviors, STIs, and poverty.³⁹ Engaging in avoidance coping
15 included using alcohol and other drugs, which in turn led to relational health challenges and
16 GBV. These findings fit within a syndemic conceptualization where substance abuse, violence,
17 and sexually transmitted infections are mutually enhancing and co-occur,⁴⁰ driven by poor
18 economic conditions. Findings also highlight how adolescent girls often find themselves
19 uniquely vulnerable to stressors related to the intersection of poverty and gender, including early
20 pregnancy, school drop-out and GBV.
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35 Appraisals about the nature of stressors and available coping resources did not emerge in
36 the community narratives, which did not lend support to the transactional stress model.⁹ Rather,
37 coping processes were described as bounded within the economic and resource constraints in the
38 communities. Poverty restricts the coping repertoires available within the community.
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45 Despite their challenging circumstances, participants also used healthy and positive
46 coping strategies. Problem-focused coping strategies revolved largely around work, contingency
47 planning for crop and other losses, and caring for their health. Social networks were also an
48 important source of coping support, but this resource is bounded by the availability of people
49 who possess the capacity to provide the specific support needed.⁴¹ Poverty drove partner and
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3 child abandonment, suggesting that when resources are lacking, familial and kinship network
4
5 members are seen as a liability for survival.
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8 The current findings have implications for intervention programs within these contexts.
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10 Given the emergence of poverty as a key underlying factor, and linkages between health, stress,
11
12 and poverty,^{8,42} cash transfer interventions are hypothesized to lead to reductions in stress;
13
14 however, the empirical evidence is mixed.^{26,43} While a study in Kenya did find that cash transfers
15
16 reduced self-perceived stress (but not cortisol, a biological marker for stress),⁴⁴ two
17
18 unconditional cash transfer programs in Zambia were successful at reducing poverty but had no
19
20 impacts on self-perceived stress.²⁶
21
22

23
24 The current study should be viewed in light of several limitations. First, the study was not
25
26 able to adequately differentiate between chronic and short-term stressors. All stressors were
27
28 reported as chronic by study participants. This limits our understanding of how daily hassles
29
30 interact to produce stress within the community. Second, since we were focused on describing
31
32 stressors, caution should be exercised when viewing this data as it may present an overly
33
34 negative portrayal of life within these communities. Third, the age range of our participants may
35
36 not reflect the breadth of stressors experienced by older community members. Finally, we cannot
37
38 rule out the possibility of seasonal variation in the salience of stressors experienced in these
39
40 villages given their agrarian nature. We did ask about stressors throughout the year in order to
41
42 mitigate this concern.
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45

46
47 Our findings suggest that cash transfer and other poverty alleviation programs could
48
49 reduce mental health and physical health problems, particularly as they relate to those stressors
50
51 that have direct relationships with poverty. This provides greater specificity for the pathways
52
53 upon which economic interventions are predicted to be effective. Poverty alleviation programs
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3 may also promote resiliency, reducing the need for negative coping strategies in the face of
4 shocks and non-poverty stressors such as droughts and floods.⁴⁵ However, despite their ability to
5 mitigate the impacts of poverty and feedback loops related to coping, these programs are
6 unlikely to address structural factors related to poverty, such as lack of access to schools and
7 quality health facilities, which were often mentioned by respondents.
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15 The mixed evidence from cash transfer interventions and the results from our current
16 study suggest the need for new quantitative measures of stress. Most stress studies in LMIC rely
17 on the Perceived Stress Scale, which was validated among a largely educated populations in the
18 United States and elsewhere,⁴⁶ and was intended for use among people with at least a junior high
19 education level.²⁷ Outside this population, this scale may not capture important features of stress.
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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

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2
3 conceptualized the research with TP, led the field data collection training, contributed to the
4 analysis, and edited the paper for intellectual content. AP collected data in the field, contributed
5 to the analysis, and edited the paper for intellectual content. LP collected data in the field,
6 contributed to the analysis, and edited the paper for intellectual content. TP jointly
7 conceptualized the research with JH, supervised the project, contributed to the analysis, edited
8 the paper for intellectual content, and secured project funding. All authors approved the final
9 paper for publication.
10
11

12 **Data sharing statement:** No additional data available
13

14 **Conflicts of interest:** The authors have no conflicts to report
15

16 **Funding:** There is no funding to report.
17
18

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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 $M = 21.90, SD = 4.31$
	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)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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

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Table 3. Stressors that exacerbate poverty

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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

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Table 4. Impacts on functioning, health, and education

Stressor	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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

BMJ Open

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Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-027047.R2
Article Type:	Research
Date Submitted by the Author:	31-Jul-2019
Complete List of Authors:	Hall, Brian; University of Macau, ; Johns Hopkins University Bloomberg School of Public Health, Garabiles, Melissa; Ateneo de Manila de Hoop, Jacobus; UNICEF Office of Research Innocenti Pereira, Audrey; UNICEF Office of Research-Innocenti, Florence Prencipe, Leah; UNICEF Office of Research Innocenti Florence Palermo, Tia; UNICEF Office of Research Innocenti
Primary Subject Heading:	Global health
Secondary Subject Heading:	Mental health
Keywords:	QUALITATIVE RESEARCH, PUBLIC HEALTH, MENTAL HEALTH

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

Word count: 4888

Number of tables: 5

References: 44

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

For peer review only

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

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3 suggests appraisal (rather than objective reality) is central to the stress process. Others have
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5 argued that the possession of resources (e.g., economic, material) determines whether a person
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7 can deal effectively with the demands of a stressor. According to the Conservation of Resources
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9 Theory, the ability to overcome stressors is predicated on the availability of needed resources
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11 that can be mobilized to overcome adverse events.¹⁰ Further, losses and gains to resources are
12
13 central to how a person experiences stress.
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17 Within LMIC, chronic poverty largely shapes the availability of resources to mobilize,
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19 and may set boundaries around adaptive coping processes.¹¹ Active and problem focused coping
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21 strategies are associated with better health outcomes but are conditioned on the ability of a
22
23 community to actively change aspects of their environment.^{12,13} In contrast, avoidant coping, or
24
25 emotion focused coping, while less likely to alleviate the stressor directly, are often used when
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27 more active strategies are not possible. Within communities experiencing chronic poverty, these
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29 are often employed when environments cannot be changed.^{14,15}
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33 Communities cope with stressors by engaging in culturally meaningful strategies, to
34
35 achieve goals and outcomes that are consonant with cultural values and norms. What constitutes
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37 a stressor and how it is experienced is a function of context and culture.¹⁶ The cultural context
38
39 largely influences the types of stressors encountered, the degree to which stressors are associated
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41 with distress, the coping strategies that are selected, and different mechanisms available within
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43 the culture to cope (e.g., social support). Some coping strategies may lead to additional disease
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45 burden. For example, poverty can lead to sexual risk-taking behaviors in service of resource
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47 acquisition. Studies demonstrate that lack of food, poor housing, and healthcare is associated
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49 with riskier sex, including partner concurrency, condomless sex, and transactional sex.^{17,18} These
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51 behaviors lead to increased risk of sexually transmitted infection and HIV.³
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3 Limited qualitative inquiries have attempted to define stress and sources of stress in
4 LMIC. It is important to identify types of stressors since this information helps to focus potential
5 intervention pathways, increase measurement specificity, and lead to a richer conceptualization
6 of the burden of stress in these communities. Studies designed to rapidly assess important
7 community-defined problems within vulnerable populations (e.g., conflict affected) within LMIC
8 suggest that key stressors are related to economic conditions and social relationships.^{19,20} Limited
9 research was conducted within rural agrarian settings in Sub-Saharan African countries. The
10 results from these investigations show that poor education, healthcare, and water and food
11 scarcity as commonly reported.^{21,22} Evidence also showed that food insecurity is closely linked to
12 poor mental health.²³⁻²⁵ Additional studies are needed that focuses on defining stress within
13 LMIC, to inform the measurement of stress within these contexts, since stress is theorized as a
14 critical mediating pathway through which cash transfer interventions are effective.^{26,27}

15
16
17 We chose to qualitatively investigate descriptions of key stressors within poor, agrarian
18 communities in three African countries: Ghana, Malawi, and Tanzania. Each of these
19 communities experience chronic poverty and have national large-scale cash transfer programmes
20 aimed at poverty alleviation.^{28,29} This makes these ideal settings to gain insights into how
21 communities conceptualize stress, which stressors are most salient within this context, and which
22 types of stressors are likely to be affected through poverty alleviation efforts. This descriptive
23 qualitative study focused specifically on adolescents and young adults, which is the age-range
24 during which many mental health problems first manifest³⁰ and may affect transitions to
25 adulthood.

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

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3 contextual and historical factors about these contexts worth noting. First, the prevalence of girls
4 married by the age of 18 in Ghana, Malawi, and Tanzania was 21%, 42%, and 31%.³¹ Second,
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6 there are uneven secondary school completion rates, with 70%, 38% and 26% gross secondary
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8 school enrolments in Ghana, Malawi and Tanzania according to World Bank 2017 data. Third,
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10 all three countries were previously governed by the British. They gained independence in: 1957
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12 Ghana; 1964 Malawi; 1964 Tanzania (merger of Tanganyika and Zanzibar). In 2017, the World
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14 Bank ranked Malawi and Tanzania as lower income countries and Ghana as a lower middle-
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16 income country. Fourth, each country has large rural population according to the World Bank:
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18 45% Ghana, 83% Malawi, and 67% Tanzania. Fifth, each country has a large informal sector
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20 according to the World Bank Enterprise Surveys. In Ghana, Malawi and Tanzania, respectively
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22 69%, 72%, and 73% of firms compete against unregistered or informal firms.
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29 The purpose of the current qualitative study was twofold. First, we aimed to investigate
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31 the intersection of poverty and chronic stress in order to identify key stressors associated with
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33 poverty. Second, we aimed to identify coping strategies used within this context to deal with
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35 these stressors. These aims articulate with UNICEF's plan to develop a context specific stress
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37 assessment tool and within the aim to examine impacts of poverty alleviation programs on stress
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39 (i.e., cash transfers).
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42 Methods

43 *Study design*

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45 This study was a descriptive qualitative study utilizing in-depth interviews. In all countries,
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47 adults provided informed consent for their own participation and consent for interviews with
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49 minors. Minors (<18 years old) provided assent, following standard ethnical procedures. Ethical
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3 approval for the study was obtained from COSTECH in Tanzania, University of Malawi ethics
4 committee in Malawi and the ethics committee at Navrongo Health Research Centre in Ghana.
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7 *Participants*

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

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42 Data were collected using in-depth interviews by local teams skilled in qualitative data
43 collection. Data collection took place in May, 2017 in Ghana, January, 2017 in Malawi, and
44 November, 2016 in Tanzania. These teams came from REPOA in Tanzania, The Centre for
45 Social Research at the University of Malawi, and Navrongo Health Research Centre in Ghana.
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47 All data collected was anonymized. Transcripts were translated into English for analysis. These
48 research teams were not known to community members before the interviews took place. Despite
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3 cultural similarity between interviewers and community members, some participants may have
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5 been disinclined to share their information since interviewers were unfamiliar to them.
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7 Interviewers were matched to interviewees by sex to mitigate bias in the interviews. There were
8
9 no interactions between the study authors and participants.
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12 Training and piloting for the current study took place over 4 days in each country (two
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14 days for training and one day each for pilot and debriefing) by UNICEF Innocenti Office of
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16 Research technical staff (JdH, AP, LP). Trainings included a study overview, a refresher on
17
18 qualitative methods and research ethics, discussions on each question in the interview guide,
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20 consent/assent processes, and role-playing. Modifications to help with the interview flow were
21
22 made based on interviewer feedback. Interview guides were translated into the local languages
23
24 (Dagbani and Gurune in Ghana, Chichewa in Malawi, and Swahili in Tanzania).
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28 An interview guide was developed that asked the following questions:
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31 *Please name all of the various events (difficulties, stressors) that occur in people's lives in your*
32 *community. Please focus on major or important events.*
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34
35 *Please name all of the various challenges (difficulties, stressors) that occur in people's lives in*
36 *your community. Please focus on everyday challenges.*
37

38 *Please name all of the problems related to poverty that people in your community experience.*
39

40 *How do people deal with these most important challenges?*
41

42 Participants were asked to report about their community of similar ages peers rather than
43
44 personal experiences, to reduce potential the concealment of stressors that may evoke
45
46 embarrassment or stigma. For each event that was named, follow-up questions were asked about
47
48 consequent behaviors, thoughts, emotions, and coping mechanisms. These follow-up probes
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50 were decided during field training by the interviewers and applied during interviews using local
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3 languages. All interviews were recorded and transcribed first into the local language, and then
4 translated once into English.
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6 *Data Analysis*

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10 Data were analyzed with NVivo 11 Plus³² using inductive qualitative thematic analysis
11 following a six-phase process.³³ This method was chosen given the descriptive study aims. We
12 analyzed data from Tanzania first, then created a coding frame. We then analyzed data from
13 Malawi then Ghana using the coding frame. We expanded the initial coding frame by including
14 new codes derived from the Malawi and Ghana data. Analysis began with a process of
15 immersion where each author read several transcripts from the Tanzania interviews. We
16 discussed the emerging themes together to develop the coding frame. The Tanzania transcripts
17 were then re-analyzed (data coding and finalizing themes) by the first and second authors (BJH,
18 MRG) using the coding frame, with regular discussions with the other authors for their
19 comments and suggestions. For remaining Malawi and Ghana transcripts, we coded text that
20 discussed stressors, impacts, and coping strategies. We collated codes into themes, and when
21 relevant, subthemes. We reviewed the themes vis-à-vis the coded extracts. This step involved
22 refining existing themes, creating new themes, and reviewing extracts to form coherent patterns
23 until we reached a fitting thematic map of our data. Lastly, in our synthesis of the thematic
24 analysis, we provided ample textual extracts balanced by themes, country, and strata.
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44 *Patient and Public Involvement statement*

45 Patients were not involved in this research.
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49 **Results**

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51 We organize the results in a broad framework encompassing 1) stressors related to
52 poverty and the lack of basic necessities, 2) additional stressors that worsen poverty-related
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3 stress, 3) impacts of these stressors on functioning, health, and well-being, and 4) coping
4 strategies used by community members. Participants report stress related to the lack of basic
5 necessities, which is due to income generation issues and poor community infrastructure and
6 facilities. Additional stressors, including environmental stressors; safety; weak social capital;
7 untimed pregnancy; and death of a parent or guardian, worsened poverty-related stress. These
8 stressors were linked to difficulties in daily functioning, health, well-being, and education.
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10 Coping repertoires were bound due to constraints of poverty, and negative and positive coping
11 behaviors were identified.
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Poverty-related stress and the lack of basic necessities

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24 Participants reported lacking basic necessities as key stressors, which is poverty-related.
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26 These stressors are presented in Table 2.
27

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

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30 Ghanaian, 17-year old female: “About the food, it is a pity. I will look at my father, think
31 and wish that I have money to buy enough food for us to eat in the house.”
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33

34 Other necessities included school-related expenses (mentioned twice as often by younger
35 participants), clothing and shoes, proper housing, and medical care (mentioned almost twice as
36 often by older participants).
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41 They lack necessities due to limitations in income generation. Many have physically-
42 demanding jobs that result in low and unstable revenues. This is illustrated in this excerpt:
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45
46 Tanzanian, 20-year old male: “Farming is like gambling: you can get harvest or not get
47 any. It is a game of chance. You spend a lot of money but end up getting nothing.”
48

49 Some women from rural areas of Ghana move to urban centers to work as porters in
50 markets (i.e., *kayayo*). Some community members in Malawi engage in short-term or casual jobs,
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3 called *ganyu*. These jobs include clearing others' land, carrying goods, and mopping floors. They
4
5 often receive in-kind compensation like food.
6

7
8 Malawian, 15-year old female: "Some when they feel they need to go to school still, they
9 work hard on *ganyu* and other things."
10

11 Lack of necessities is also due to poor community infrastructure and facilities, such as
12
13 tractors and grinding mills for farming; public transportation; roads, markets, and police stations,
14
15 along with access to electricity and water. Schools and hospitals are distant and at times
16
17 inaccessible. One participant reported:
18

19
20 Malawian, 21-year old male: "Diseases, since they sometimes come in the middle of the
21 night, we wait till morning to look for transportation."
22

23 24 **Additional stressors that exacerbate poverty-related stress**

25
26 Additional stressors exacerbate poverty, making it more difficult to resolve problems
27
28 (See Table 3). These include: environmental stressors; security, safety, and violence; weak social
29
30 capital; untimed pregnancy; and death of parent or guardian. Negative coping also hinders stress
31
32 reduction.
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35 ***Environmental stressors.*** Environmental events were discussed, especially by Malawians
36
37 and by male participants (31 vs. 18 mentions). This includes extreme weather conditions like
38
39 drought and flooding.
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41
42 Ghanaian, 16-year old, male: "... when we farm and there happens to be flooding in that
43 year, it will be difficult to get enough food especially maize as our staple food."
44

45
46 There are land-related problems (i.e., land of poor quality) and animal-related losses.
47
48 Man-made losses occur when crop or bush-burning spreads before harvest, which destroy soil
49
50 fertility.
51

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53 Ghanaian, 17-year old male: "When he doesn't harvest on time and every other field
54 around him is harvested, they burn the place and it finally affects the one left."
55

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3 ***Safety-related stressors.*** Participants mentioned physical assault, theft, and intimate
4
5 partner violence. Travelling long distances to get water makes people vulnerable to sexual
6
7 assault. The young and women, in particular, are at risk of both physical and sexual assault:
8
9

10 Tanzanian, 16-year old female: “There is a man who hides and waits for girls who are
11 going there to fetch water to rape them. When he sees a girl coming, he will call her and
12 if she refuses, he will use cutlass [*a slashing sword*] to attack the girl... he attacked one
13 girl and cut her fingers.”
14

15 ***Weak social capital.*** Living in impoverished communities translates to fewer chances of
16
17 giving and receiving help from people who are already having a hard time meeting individual
18
19 needs. Participants would rather prioritize their personal and familial needs.
20
21

22 Malawian, 21-year old female: “Everyone looks at their problems in their household, that
23 even when they have a pail of flour, they cannot get and share. Helping each other stops
24 because everyone does their own thing.”
25
26

27 ***Untimed pregnancy.*** School disruptions, difficulty finding employment, and childcare
28
29 expenses are associated with untimed pregnancy, which was mentioned more frequently by
30
31 females than males (16 vs. 4 times).
32
33

34 Ghanaian, 19-year old, female: “... they get a boy who can give them money, they start
35 dating the guy and eventually get pregnant. The problem is, if their parents had the
36 money to take care of them, they wouldn't have followed the guy in the first place.”
37
38

39 Some women experience relational health problems due to arguments or abandonment by
40
41 partners, family members, or peers, and they are targets of gossip in their community. Untimed
42
43 pregnancy is also associated with mental health issues.
44

45 Tanzanian, 18-year old, female: “The thoughts of why questions, why my husband has
46 left me, wondering what is wrong with me, why life has to be this way, and for major
47 challenges one just gets thoughts of, thinking of giving up and not knowing what to do.
48 Start to think that everything has fallen apart.”
49
50

51 ***Death of parent or guardian.*** Death of parent or guardian results to loss of care and
52
53 support. It is also associated with weight loss and headaches, mental health problems, and school
54
55 discontinuation.
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3 Tanzanian, 17-year old female: “Those without parents, they will be thinking how they can
4 get food and sustain themselves. They face very difficult conditions, sometimes they sit
5 down and cry.”
6
7

8 **Impact on functioning, health, and education**

9 Lack of necessities, income generation issues, and poor infrastructure and facilities make
10 people vulnerable to more stressors impact daily functioning, health, well-being, and educational
11 opportunities (See Table 4).
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16 It becomes more difficult to work and be productive as lack of nourishment depletes
17 energy, whereas poor infrastructure restricts mobility:
18

19
20 Ghanaian, 28-year old male: “If you did not eat how can you work? You would be there
21 thinking about food and not about the work you are even supposed to do.”
22

23
24 Stress and work take a physical toll and signs of stress manifest by weight loss, looking
25 unclean, not washing, and appearing older. A participant said:
26

27
28 Malawian, 23-year old female: “... one gets affected and say, “The way I am looking, do
29 I look like a human being or what? What should I do to make myself look like the way
30 my friends look?””
31

32
33 Poor infrastructure and lack of clean water lead to gastrointestinal diseases and vector-
34 borne disease. Malnutrition and stunted growth occur due to lack of nourishment. High blood
35 pressure also occurs, which some attribute to mental health problems. Accidents that lead to
36 injuries are common, such as riding feeble carts to fetch water and driving *bodaboda*
37 (motorcycle taxis common in East Africa) or bicycles.
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44 Malawian, 21-year old female: “You may have diarrhea, since you picked something bad
45 to eat.”
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47
48 In terms of well-being, the most common are feeling depressed and ashamed, which leads
49 to withdrawal and isolation.
50

51
52 Ghanaian, 16-year old female: “Sometimes I feel like crying ... I will be thinking about
53 how my parents are not able to get my needs for me and tears will be dropping from my
54 eyes.”
55
56

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:

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4 Tanzanian, 17-year old male: “Some engage in theft because they don’t have anything to
5 support their family ... you can decide to steal some jackfruits and eat.”
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8 Tanzanian, 17-year old female: “The girl was nine months pregnant but still sleeps with
9 men so that she can have something to eat.”
10

11 Others abandon their family. Some abandon their partners who then become single
12
13
14 parents, whereas children are left with relatives.
15

16 Malawian, 19-year old male: “Because you lack food, you suffer at home. Sometimes it’s
17 the wife who runs away from you, like, “I’m gone,” because a person lacks food.”
18
19

20 **Positive coping.** Five positive coping responses were discussed by participants.
21

22 First is problem-focused coping, including working hard, starting a business, or changing
23
24 jobs. Included is planning for the future, like investing and saving money or crops; going to
25
26 school or sending children to school; helping improve community infrastructure; finding
27
28 additional employment; and caring for their health.
29
30

31 Ghanaian, 15-year old male: “They go early to the bushes to handpick shea nuts before
32 going to school ... that is what they will sell to be able to buy some of those things.”
33
34

35 Second is social coping by providing help and advice to others, seeking help or opening
36
37 up to others, improving relationships, and paying off debts.
38

39 Third is spiritual coping by turning to God.
40

41 Fourth is preventive coping by avoiding problematic people, being cautious in public
42
43 places, driving safely, and avoiding risky behaviors.
44
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46 Last is emotion-focused coping, by being positive, being persistent, and tolerating their
47
48 situation.
49

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

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

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

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

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

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3 planning for crop and other losses, and caring for their health. Social networks were also an
4
5 important source of coping support, but this resource is bounded by the availability of people
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7 who possess the capacity to provide the specific support needed.⁴¹ Poverty drove partner and
8
9 child abandonment, suggesting that when resources are lacking, familial and kinship network
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11 members are seen as a liability for survival.
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15 The current findings have implications for intervention programs within these contexts.
16
17 Given the emergence of poverty as a key underlying factor, and linkages between health, stress,
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19 and poverty,^{8,42} cash transfer interventions are hypothesized to lead to reductions in stress;
20
21 however, the empirical evidence is mixed.^{26,43} While a study in Kenya did find that cash transfers
22
23 reduced self-perceived stress (but not cortisol, a biological marker for stress),⁴⁴ two
24
25 unconditional cash transfer programs in Zambia were successful at reducing poverty but had no
26
27 impacts on self-perceived stress.²⁶
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31 The current study should be viewed in light of several limitations. First, the study was not
32
33 able to adequately differentiate between chronic and short-term stressors. All stressors were
34
35 reported as chronic by study participants. This limits our understanding of how daily hassles
36
37 interact to produce stress within the community. Second, since we were focused on describing
38
39 stressors, caution should be exercised when viewing this data as it may present an overly
40
41 negative portrayal of life within these communities. Third, the age range of our participants may
42
43 not reflect the breadth of stressors experienced by older community members. Finally, we cannot
44
45 rule out the possibility of seasonal variation in the salience of stressors experienced in these
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47 villages given their agrarian nature. We did ask about stressors throughout the year in order to
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49 mitigate this concern.
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54 Our findings suggest that cash transfer and other poverty alleviation programs could
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3 reduce mental health and physical health problems, particularly as they relate to those stressors
4 that have direct relationships with poverty. This provides greater specificity for the pathways
5 upon which economic interventions are predicted to be effective. Poverty alleviation programs
6 may also promote resiliency, reducing the need for negative coping strategies in the face of
7 shocks and non-poverty stressors such as droughts and floods.⁴⁵ However, despite their ability to
8 mitigate the impacts of poverty and feedback loops related to coping, these programs are
9 unlikely to address structural factors related to poverty, such as lack of access to schools and
10 quality health facilities, which were often mentioned by respondents.
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21 The current study demonstrated a specific mix of stressors largely focused around
22 poverty. Most stress studies in LMIC rely on the Perceived Stress Scale, which was validated
23 among a largely educated populations in the United States and elsewhere,⁴⁶ and was intended for
24 use among people with at least a junior high education level.²⁷ Outside this population, this scale
25 may not capture important features of stress. Moreover, a new stress scale could be designed to
26 be more specific about the sources of stress, and not only focus on the levels of stress
27 experienced in a community. Differentiation between poverty and non-poverty-related stressors
28 enables a more nuanced view of the source and type of stressors experienced. Key aspects of
29 income generation, food and water insecurity, relational factors, and exposure to violence would
30 be a specific measurement of stress within agrarian regions of African countries experiencing
31 ongoing poverty.
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46 In summary, we described stressors in rural, agrarian populations in sub-Saharan African
47 and respondents' descriptions of how they experience and cope with these stressors. The salience
48 of poverty-related stressors was reflected in these descriptions, and suggests that stress should be
49 considered in understanding pathways between poverty alleviation programs and health and
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3 general well-being, and that adequate measures of stress may need to be further contextualized
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5 and adapted to these settings.
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8 **Author Contributions**

9
10 BJH led the research design, qualitative analysis, and wrote the first draft of the paper. MRG
11 conducted the analysis, wrote the results, and edited the paper for intellectual content. JH jointly
12 conceptualized the research with TP, led the field data collection training, contributed to the
13 analysis, and edited the paper for intellectual content. AP collected data in the field, contributed
14 to the analysis, and edited the paper for intellectual content. LP collected data in the field,
15 contributed to the analysis, and edited the paper for intellectual content. TP jointly
16 conceptualized the research with JH, supervised the project, contributed to the analysis, edited
17 the paper for intellectual content, and secured project funding. All authors approved the final
18 paper for publication.
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21 **Data sharing statement:** No additional data available

22 **Conflicts of interest:** The authors have no conflicts to report

23
24
25 **Funding:** There is no funding to report.
26
27

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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 $M = 21.90, SD = 4.31$
	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)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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

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Table 5. Negative and Positive coping strategies

Coping strategy	Total (N=81)	Tanzania (n=40)		Malawi (n=20)		Ghana (n=21)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
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

<p>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</p>	1
<p>Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	2

Introduction

<p>Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	4
<p>Purpose or research question - Purpose of the study and specific objectives or questions</p>	7

Methods

<p>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**</p>	10
<p>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</p>	8/9
<p>Context - Setting/site and salient contextual factors; rationale**</p>	6/7; 8
<p>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**</p>	8
<p>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</p>	7/8
<p>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**</p>	8

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3	Data collection instruments and technologies - Description of instruments (e.g.,	
4	interview guides, questionnaires) and devices (e.g., audio recorders) used for data	
5	collection; if/how the instrument(s) changed over the course of the study	10n/a
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7	Units of study - Number and relevant characteristics of participants, documents,	
8	or events included in the study; level of participation (could be reported in results)	8
9		
10	Data processing - Methods for processing data prior to and during analysis,	
11	including transcription, data entry, data management and security, verification of	
12	data integrity, data coding, and anonymization/de-identification of excerpts	8
13		
14	Data analysis - Process by which inferences, themes, etc., were identified and	
15	developed, including the researchers involved in data analysis; usually references a	
16	specific paradigm or approach; rationale**	10
17		
18	Techniques to enhance trustworthiness - Techniques to enhance trustworthiness	
19	and credibility of data analysis (e.g., member checking, audit trail, triangulation);	
20	rationale**	10

Results/findings

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

Discussion

32	Integration with prior work, implications, transferability, and contribution(s) to	
33	the field - Short summary of main findings; explanation of how findings and	
34	conclusions connect to, support, elaborate on, or challenge conclusions of earlier	
35	scholarship; discussion of scope of application/generalizability; identification of	
36	unique contribution(s) to scholarship in a discipline or field	17
37		
38	Limitations - Trustworthiness and limitations of findings	19

Other

42	Conflicts of interest - Potential sources of influence or perceived influence on	
43	study conduct and conclusions; how these were managed	21
44		
45	Funding - Sources of funding and other support; role of funders in data collection,	
46	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.

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**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](https://doi.org/10.1097/ACM.0000000000000388)

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