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ORIGINAL PAPER

# "My Heart Die in Me": Idioms of Distress and the Development of a Screening Tool for Mental Suffering in Southeast Liberia

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**Abstract** The integration of culturally salient idioms of distress into mental healthcare delivery is essential for effective screening, diagnosis, and treatment. This study systematically explored idioms, explanatory models, and conceptualizations in Maryland County, Liberia to develop a culturally-resonant screening tool for mental distress. We employed a sequential mixed-methods process of: (1) free-lists and semi-structured interviews (n = 20); patient chart reviews (n = 315); (2) pile-sort exercises, (n = 31); and (3) confirmatory focus group discussions (FGDs); (n = 3) from June to December 2017. Free-lists identified 64 idioms of distress, 36 of which were eliminated because they were poorly understood, stigmatizing, irrelevant, or redundant. The remaining 28 terms were used in pile-sort exercises to visualize the interrelatedness of idioms. Confirmatory FDGs occurred before and after the pile-sort exercise to explain findings. Four categories of idioms resulted, the most substantial of which included terms related to the heart and to the brain/mind. The final screening tool took into account 11 idioms and 6 physical

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symptoms extracted from patient chart reviews. This study provides the framework for culturally resonant mental healthcare by cataloguing language around mental distress and designing an emic screening tool for validation in a clinical setting.

**Keywords** Idioms of distress · Liberia · Screening tool development · Culture and psychiatry · Mental health

## Introduction

Providing adequate mental healthcare in non-Western low-resource settings requires understanding culturally salient expressions of mental suffering and how such expressions manifest in various contexts. While translating DSM or ICD-based screening tools to reflect local languages provides a modicum of cultural representation, this etic approach often fails to capture the unique expressions of mental suffering that occur within non-Western cultures (Kaiser et al. 2015b; Kleinman 1987). In Haiti, for instance, locally-developed screening tools that incorporated idioms of distress were associated with better specificity and cultural equivalence than screening tools that were directly translated from English to Haitian Kreyól (Kaiser et al. 2013). The problematic imposition of Western conceptualizations of mental illness on non-Western cultures perpetuates paternalist and neo-colonial practices that exclude local ideologies at the expense of those suffering from mental distress. A growing body of research acknowledges the subjectivity of the presentation and conceptualization of mental ill-health and calls for emic research that understands non-Western explanatory models and forms screening tools and diagnostic frameworks from local concepts (Summerfield 2008; Kaiser et al. 2014; Weaver 2017). Incorporating local idioms of mental distress into mental healthcare and psychiatric treatment has become an increasingly well-recognized way of prioritizing local perspectives and grassroots mental health research as well as providing culturally sensitive care in non-Western contexts.

In many non-Western settings, the terms “anxiety” and “depression” have no direct equivalences in local languages and are not well recognized by people who have had little exposure to Western medical training or formalized education (Sweetland, Belkin, and Verdeli 2014). Psychiatric categories based on biomedical models oversimplify the nuances of language that describe the breadth of experiences associated with mental suffering and potentially fail to identify many who could benefit from treatment (Summerfield 2012). Psychiatry, which unlike other medical professions, requires diagnostics based on symptoms that differ between cultures rather than on biomarkers or lab tests, has the potential to provide an avenue for more culturally resonant clinical encounters through understanding local communications of mental distress (Keys et al. 2012; Haroz et al. 2017; Kirmayer 2001). Research has shown that explanatory models rooted in non-medical practices and beliefs are not anathema to biomedical explanations for mental illness, but rather provide an opportunity for collaborative treatment pathways that value local knowledge (Khoury et al. 2012). Furthermore, neglecting to acknowledge locally-resonant etiologies can reinforce the false dichotomy

between biomedical and traditional practices. Ideally, understanding a particular culture's articulation of mental distress can inform medical practices built from local ideologies in which patients can see their culture and belief system reflected. Especially in rural areas in sub-Saharan Africa, where somatic symptoms are strongly associated with mental distress (Quarshie 2006), healthcare environments that utilize open communication about symptoms associated with mental distress and their social context can provide a deeper understanding and more holistic view of these conditions.

Early ethnographic explorations of idioms of mental distress in non-Western contexts have evolved to a more nuanced discussion of the relationships between expressions of mental suffering and the broader social, cultural, religious, and political context. The term "idioms of distress" refers to culturally specific expressions of suffering, which occur in populations worldwide, as all mental distress is influenced by culture and context. A significant body of work has been compiled regarding idioms of distress in sub-Saharan Africa. The term *kufungisisa* in Zambia and South Africa was identified as symptomatic of mental distress as well as physical and spiritual suffering (Patel, Simunyu, and Gwanzura 1995). In Uganda, the condition *false teeth* is not only an affliction among children, but is also thought to be an expression of socioeconomic hardships within the collective population. Ugandan mothers recognize the novel nature of the condition and attribute its conception with the atrocities of the Amin regime. In this way, this idiom is thought to be an expression of the collective trauma of war and violence as well as subsequent poverty and socioeconomic stress (Mogensen 2000). In Guinea Bissau, the phenomenon of *kiyang-yang* arose among Balanta women as a way of expressing both individual and collective trauma associated with poverty, conflict, and as a way of emphasizing the oppressive aspects of Balanta society that reinforced these stressors (de Jong and Reis 2010). This term's use as an expression of political dissent as well as individual and collective suffering and mental distress further illustrates the multifaceted and complex utility of idioms of distress in communicating trauma and distress on both an individual and societal level.

Previously explored idioms of distress from other settings have set a framework on which culturally resonant mental healthcare has been built. As early as the 1960s, researchers developed a psychometric instrument based on the idiom *brain fag* in West Africa to measure conditions related to stress among students (Ola and Igbokwe 2011). Research in Haiti has revealed the prevalence of head-related and heart-related terms when describing mental suffering, which informed the development of an emic distress screener utilizing these terms (Keys et al. 2012; Rasmussen et al. 2015; Kaiser et al. 2013). In Nepal, researchers have identified four distinct concepts of self and deconstructed mind–body divisions that communicate mental distress (Kohrt and Harper 2008; Kohrt and Hruschka 2010). Subsequent studies have used these ethnopsychologies as a basis to create culturally informed screening tools for depression and childhood trauma (Kohrt et al. 2011). Research in Cambodia exploring explanatory models related to *khyal* attacks precluded the development of a culturally sensitive questionnaire for trauma among Cambodian refugees (Hinton et al. 2010, 2013). Mental healthcare built upon local idioms and communication strategies can foster accessible and nuanced pathways to care that

support the treatment objectives of patients and clinicians, and preliminary ethnographic research is a necessary first step.

In Liberia, few studies have explored idioms of distress and mental health communication. Abramowitz' 2010 study of the term *open mole* provided an in-depth look at this condition/culture-bound syndrome in the northwest of Liberia (Abramowitz 2010). The Carter Center conducted an unpublished qualitative assessment of general idioms of distress, which also took place in 4 counties in northwest Liberia. They also developed a culturally adapted but unvalidated version of the PHQ-9 for Liberia, though no emic screening tools have been developed to incorporate local presentations and idioms of distress. This study takes an in-depth look at distress idioms and local presentations of mental suffering with a specific focus on symptoms that overlap with less well recognized forms of distress that biomedical etiologies associated with common mental disorders. It is the first of its kind to examine idioms for the purpose of developing a culturally informed screening tool that can capture a wider range of symptomatic presentations and serve as foundational mental health research upon which further studies can build.

## Methods

### Study Setting

Liberia entered a period of national recuperation and reconstruction following its emergence from a 13-year civil war in 2003. The rebuilding process was interrupted in 2014 by the Ebola epidemic that infected an estimated 10,687 people and directly


**Fig. 1** Map of Partners In Health's activities in Liberia. This study took place in Maryland county

led to the loss of over 8% of the healthcare workforce nationwide (Evans, Goldstein, and Popova 2015; Centers for Disease Control 2016). Maryland county (see Fig. 1), which contains approximately 136,000 of Liberia's 3.5 million people, is located in the remote and often inaccessible southeast corner of the country on the border of Côte D'Ivoire (Government of the Republic of Liberia 2008). A large portion of the population in this region sought refuge in Côte D'Ivoire during the civil war, which led to the substantial disruption of the healthcare system. Following the civil war, one epidemiological survey found 40% of adults met the criteria for Major Depressive Disorder and 44% met the criteria for PTSD (Johnson et al. 2008). Liberia has one psychiatric hospital and considerable stigma exists surrounding mental healthcare, for both clinicians and patients (Esan et al. 2014; World Health Organization 2011; Gwaikolo, Kohrt, and Cooper 2017).

## Data Collection and Sampling

We employed a variety of qualitative research techniques including: (1) free-lists accompanied by semi-structured interviews (SSIs); (n = 20); (2) pile-sort (n = 31) exercises, and (3) focus group discussions (FGDs); (n = 3). We also reviewed a census of 315 charts from JJ Dossen Hospital and Pleebo Health Center, the only regional hospital and health center in the southeast that contain clinics exclusively for mental health. All qualitative interviews and exercises were conducted by the lead author and at least one of three trained Liberian research assistants.

We used maximum variation sampling to obtain a representative sample of Maryland County in terms of age, gender, ethnic community, education level, occupation, and geographical area. Participants ranged from 19 to 81 years old and represented five distinct ethnic communities. Participants lived in both the urban centers of Harper and Pleebo, as well as in the surrounding rural communities. This purposive sampling method allowed us to conduct all data collection in English. The study took place over a 6-month period from June to December 2017 in Maryland County, with support from Partners In Health, a large NGO that supports clinical services, community health, infrastructure development, and social support in southeast Liberia.

## Step 1: Free-List Exercise and Semi-structured Interviews

We conducted free-list exercises along with SSIs among lay participants (n = 20, 8 women and 12 men) to compile an initial list of common idioms of mental distress. Our sample size was not predetermined, but rather focused on achieving saturation when no new information was repeatedly gleaned from interviews. During these interviews, we did not use the word "mental illness", as it is poorly understood among laypeople in the region. We instead developed descriptive situations that included prompts such as, "what are some words you can use to describe someone in the community who is feeling sad, is just thinking, worrying, in a way that is different than normal?". All free-lists were accompanied by a semi-structured interview, during which we asked each participant to explain and elaborate on the terms they listed, or, in some cases, to explain their conceptualization of a term that other participants had mentioned. Free-lists and SSIs were audio recorded and

accompanied by written field notes and then subsequently transcribed. Resultant qualitative data was analyzed using QSR NVivo 11 software.

After the results of the initial term elicitation from the 20 free-list exercises and semi-structured interviews were compiled, we conducted a focus group to better understand the linguistic similarities and differences between terms to make an informed decision about which terms could be combined and which represented separate concepts. This focus group also allowed us to further differentiate between terms which were directly related to epilepsy or psychotic symptoms, which we excluded from the final list of terms for the pile-sort activity. We also eliminated terms that were considered too general or not explicitly tied to mental distress, terms that were considered stigmatizing, and terms that were only mentioned by one person and are therefore not considered part of a shared cultural domain (Bernard and Ryan 2010). Smith's Salience was calculated for the final list of terms, which takes into account the frequency and the order of mention for each term, both of which are indicators of familiarity (Bernard and Ryan 2010). The 28 most salient terms were included in the pile-sort activity.

### Step 2: Pile-Sort Exercises

Pile-sorts were conducted among a new naïve set of participants (n = 31, 15 women and 16 men). The purpose of the exercise was to understand the relationships between the terms that emerged from the free-list exercise. Following the process outlined in Bernard and Ryan (2010), each term was written on a note card and participants were asked to group the cards according to how the terms related to each other (Bernard and Ryan 2010). Participants could create as many piles as they thought necessary and exclude any cards that were unrelated or not understood. We accounted for literacy by reading the cards aloud for all participants. The results were analyzed using ANTHROPAC 4.983 to create a multidimensional scale visualization of the groupings and interconnectedness of terms, with the resulting cluster analysis overlaid in color on the graphic (Borgatti 1996).

### Step 3: Chart Reviews

We reviewed a census of 315 patient charts written at initial visits from May 2015 to September 2017 in the mental health clinic of the county hospital in Harper city in order to examine the commonly expressed somatic symptoms that accompany mental distress in a clinical setting. We captured qualitative data that identified the physical complaints of patients during the clinical encounter and any idioms patients used to describe their presenting features. Recognizing that current diagnostic criteria are based solely on a biomedical model of mental illness, we reviewed all charts and extracted qualitative data from those that potentially reflected local presentations of mental distress across diagnostic categories. We abstracted data from the "presenting complaints" and the "patient history" section of the charts, both of which were handwritten lists or narratives of the patient's primary complaints and rarely contained interpretation from the clinician. For this reason, these sections were thought to accurately reflect words exchanged during the clinical encounter and

therefore provide a representation of the patient's complaints and reasons for visiting the clinic. We reviewed a census of 315 charts and extracted qualitative data from 189 that contained a substantive patient history and/or presenting complaints section. Results were coded for symptomatology and idioms using QSR NVivo 11 software.

### Step 4: Screening Tool Development

The final screening tool contained two domains, one with locally-derived idioms of distress each paired with a function impairment question, and the other with common physical manifestations of mental suffering. We sought confirmation and further explanation of the results of the free-list and pile-sort exercises in two focus groups, one with 9 lay community members (3 women and 6 men) and one with 4 mental health clinicians (2 women and 2 men). For terms represented in the graphic visualization of the cluster analysis (Fig. 2), we engaged in a discussion designed to clarify which terms in each distinct cluster were the most appropriate for a screening tool. For each cluster

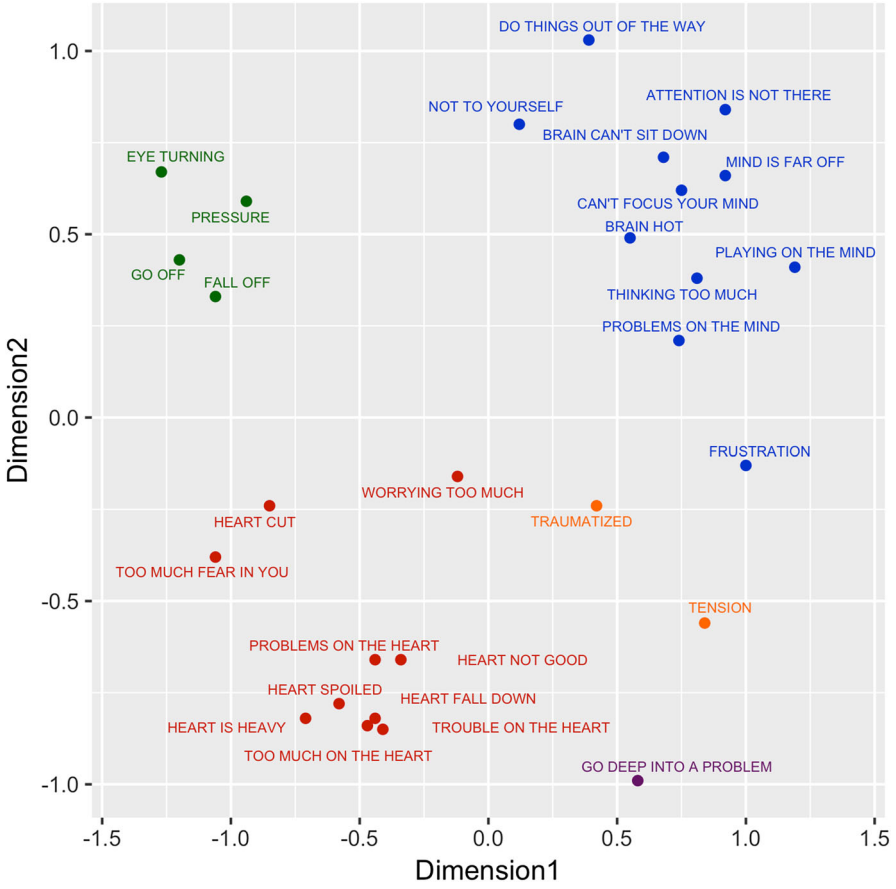


**Fig. 2** Multidimensional scale representation of 28 idioms of distress from pile-sort activities, colors overlaid represent distinct groupings resulting from cluster analysis

of terms, we identified the terms that were the most well understood and represented distinct ideas or phenomena. For situations in which multiple terms referred to the same phenomenon, we discussed which term best encapsulated the phenomenon with the most clarity. For the physical presentations, we included the symptoms that were most commonly mentioned in the patient charts and did not directly overlap with symptoms mentioned in the idioms portion of the screener in order to reduce redundancy. The focus groups were a confirmatory mechanism to ensure the relevance of our term choices and the clarity of our language usage.

### Analyses

Our qualitative analysis followed the methods for Cultural Domain Analysis (CDA) described in Bernard and Ryan (2010). The authors describe this as a technique used for generating and understanding a set of concepts that refer to the same conceptual sphere (Bernard and Ryan 2010). For the initial term elicitation, we calculated Smith's Salience, a statistic that takes into account both the frequency and how early each term was mentioned (Bernard and Ryan 2010). For pile-sort exercises, we used multidimensional scaling (MDS) in order to understand the structure of terms within the domain of mental distress. This generated a visualization of the relationships between terms. A subsequent hierarchical cluster analysis confirmed the accuracy of groupings among the terms. We calculated the eigenratio of the domain to determine consensus among participants. All numeric calculations and visualizations were conducted using ANTHROPAC 4.983 software (Borgatti 1996).

## Results

Our results yielded idioms that referred to a multitude of ways of experiencing mental distress and personalized the narratives behind these expressions. During a particularly poignant interview, one mental health clinician recounted the story of a patient who was suffering from mental distress but struggled to find the words to express what he was experiencing. The patient complained of severe recurrent headaches, the inability to focus, and a deep sadness that he described with a particular term that the clinician was having trouble remembering, but that had brought her to tears. After some time, a look of grief and recognition passed on her face; she picked up a pen, wrote something on her hand, and held it out. "*My heart die in me*".

This evocative example highlights the importance of idioms in expressing mental distress and exemplifies how one idiom can encapsulate a myriad of "classical" symptoms of mental ill-health. Through the processes of analyzing the qualitative date from the SSIs, FGDs, free-list, and pile-sort activities, we found that the majority of idioms fell into two distinct categories, one of terms related to the mind and brain, and other of terms related to the heart. Two smaller collections of terms were those related to losing consciousness and those relating to conditions associated with both mind/brain and heart terms. One last term was frequently excluded by participants and therefore fell outside of the other terms, indicating it was poorly understood. The clustering of these categories can be found in Fig. 2.

### Step 1: Free List Exercises and Semi-structured Interviews

Interviews with 20 participants (8 women and 12 men) resulted in an initial list of 64 idioms of mental distress. Smith's Salience was calculated for each term, the values of which ranged from 0.003 to 0.689 (see Supplementary Appendix I). Our initial term elicitation interviews yielded terms referring to a range of conditions including terms associated with psychotic symptoms and seizures. During the SSIs, we asked participants to elaborate on each term they listed. A subsequent FGD, combined with the data from the SSIs, led us to eliminate 36 terms that were poorly understood or stigmatizing, terms referring explicitly to seizures or psychosis, terms that were not part of a shared cultural domain, and multiple terms referring to the same concept (see Supplementary Appendix I for excluded idioms). Twenty-five terms were only mentioned once and were therefore eliminated for not being part of a shared cultural domain.

Of the initial list of idioms, we discuss three highly salient and evocative examples used to communicate mental distress in rural Liberia: frustration, thinking too much, and pressure.

The term *frustration* emerged as the most salient term, with a Smith's Salience value of 0.689. This term, which was endorsed by 19 out of 20 free-list and SSI participants, has a range of meanings that encompass a wide variety of symptoms and idioms. As one person stated, when a person is *frustrated*, "they feel that all is lost, life is not in their favor, so they can just let go, let loose" (business owner, 35, male). Others described it as "hard thinking, plenty thinking, thinking too much" (Township Clerk, 55, male), having "plenty trouble in the heart" (farmer, 75, male), "you feel you are defeated, that you're giving up" (university professor, 76, male). The term was associated with behavior change that goes beyond everyday feelings of sadness. As one businesswoman (age 41) described:

> Someone who is frustrated is different. There are some people, they are not frustrated but they are just quiet, they are sad. And they have some people who are frustrated and because of this they decide to carry themselves away from people, to just be away, I'm in my problem let me just be alone, I don't need someone to be around me.

*Thinking too much* was also widely used to express mental distress, and was the second most salient idiom, with a Smith's Salience of 0.444. *Thinking too much* was described in a variety of circumstances, usually associated with preoccupied and ruminating thoughts. A traditional healer (male, 42) described the difference between *thinking too much* and worrying about small things:

> I worry about the clothes that the man wears, I hope I will get that thing, that person's worrying about that thing. But thinking, with your whole knowledge, your whole heart, your whole mind, everything's on that thing. It means you just focus on that whole thing.

*Thinking too much* was thought of as pathological and was frequently associated with other symptoms. One woman told us that "sometimes you walk in the street because the thinking too much for you, you talk by yourself" (single mother, 36),

referring to two symptoms (*walk in the streets* and *talk by yourself*) endorsed as relating to psychosis. Another respondent echoed this explanatory model, saying that someone who is *thinking too much* can "suffer from some sort of stigma, stress from too much thinking, like family problem or other thing, they get them to mentally disordered" (policewoman, 30).

Many respondents commented on the development of *pressure* (Smith's Salience 0.389), which has various clinical interpretations. Many respondents mentioned pressure as synonymous with hypertension, or high blood pressure. As one retired government official (male, 81) explained:

> Pressure can start from the food we eat. For instance, I had pressure, they told me not to eat…before I went to hospital in Monrovia, when they check me they say what type of food you eating? I told them; they say from now on don't eat butter rice again.

Other respondents told us that *pressure* results from mental distress. Specifically, "when you think too much, it runs down into your brain and you develop pressure; you have mental tension" (female business owner, 41). Or alternatively, "To be overjoyed, to be anger, too much talking, stress, worry over one problem can make you go high, cause pressure" (businesswoman, 34). Respondents described *pressure* as a physical sensation, usually a head or neck pain. One local governor (female, 47) explained "most time from your neck, your head start to hurt unnecessary, but it treat people different–different ways, sometimes your eyes start to turn [dizziness occurs]". In most instances, *pressure* emerged as a salient term to communicate mental distress, regardless of the degree of biomedical association. One woman told us she had high blood pressure and said, "sometimes you worry too much, then the pressure can be too much for you too, and they do your BP, but that not high blood pressure" (housewife, 51).

These idioms reflect a few examples of culturally salient idioms and explanatory models for mental ill-health in Liberia, though the dynamic and multifaceted nature of culture itself means that interpretations inevitably vary. The full list of idioms from the pile-sorts, their salience, and their general meanings are in supplementary appendix III.

### Step 2: Pile-Sort Exercises

Four distinct groupings of terms emerged from the pile-sort activity, with each category seemingly representing different aspects of mental distress and their associated symptoms (see Fig. 2). The eigenratio resulting from the consensus analysis was 7.087, indicating agreement among participants. The two most substantial categories include terms related to the heart and terms related to the brain and mind. Out of the 28 terms included in the pile-sort activity, 75% fell into one of these two categories. Heart-related terms, which accounted for 10 of 28, primarily described various emotions or emotional states. Specifically, several terms related to feeling upset, angry, or short tempered (*heart not good, heart heavy, heart spoiled*). One barber (32, male) described:

> Sometimes maybe somebody make you vexed already, and while you thinking about that and somebody wants to bring jokes to you, you say 'no, my man, my heart not good, my heart spoiled, so I don't want you bother me'.

One term that fell into the heart-related category, *too much fear in you*, describes feeling anxious or easily frightened, and was closely linked to the term *heart cut*, meaning startled, or the sensation of the heart skipping a beat or palpitating. A mental health clinician (female, 44) described people who experience this, saying "they just fear that something big is going to happen to them, and they are jittering, on edge, like if you touch something their heart will cut and they want to jump". Another term in this category, *heart fall down,* describes disappointment, or lack of trust, as when "maybe I do something to you that does not please you, it can make your heart to fall down from me" (farmer, 59). Several other terms described feelings of being overburdened or overwhelmed, such as *too much on the heart, problems on the heart,* and *trouble on the heart*. One Township Clerk (male, 55) described a situation that leads to too much on the heart:

> The money that I was depending on, I know next month my house I will pay it. Then someone steals my money. Too much on the heart. Keeping somebody's money, if I don't have strong heart, sometimes it's cause frustration.

Heart terms were connected to both emotional pathology and resilience. Respondents referred to this resilience as having a "strong heart", or occasionally, a "man heart" (though it was stated that many women have a "man heart"). One respondent explained, "if I don't have strong heart, sometimes it can lead to frustration". Or alternatively, "your heart cut, you can feel something happening, you can get sickness if you not get strong heart" (fisherman, 26).

The terms *heart cut* and *too much fear in you*, while still in the heart-related category according to the cluster analysis, were situated closest to a third cluster of terms that was comprised of the terms *fall off, go off, pressure,* and *eye turning*, suggesting a relationship. This group seemingly describes terms related to losing consciousness or fainting. *Eye turning*, which means dizziness, and *pressure,* which was described above, relate to *fall off* and *go off*, both of which refer to losing consciousness. Respondents described a number of situations in which *falling* off and *going off* can occur, ranging from epileptic fits to sudden and surprising news to stressful events. One farmer (male, 59) described such a situation:

> I saw it once; a lady, she had a man who had another friend, so the worriness, you know she was thinking too much, could not eat, don't want to eat, feel like she was losing her man so, one day she had to fall off.

One mental health clinician suggested these terms can refer to panic attacks, though differentiating between this and other interpretations including losing consciousness and epileptic episodes remains a challenge.

The largest cluster, comprising 11 of the 28 pile-sort terms (39%), included terms related to the mind or brain. Contrasting to the heart-related terms that primarily described emotions and emotional states, this cluster includes terms related to thinking, focus, and attention. The terms *mind is far off, attention is not there, brain*

*can't sit down,* and *can't focus your mind* refer to a lack of concentration or inability to focus. Some respondents explained this as an extreme symptom associated with psychosis, as in "if he thinking too much, it makes the mind be crazy. You don't know what you're doing, your mind far away from you" (cleaner, male, 64). *Thinking too much, problems on the mind, brain hot,* and *playing on the mind* generally refer to rumination, whereas *not to yourself* and *do things out of the way* refer to abnormal behavior or confusion. The term *frustration*, which has been described above in detail, also falls in this category, though many respondents explained *frustration* as an outcome resulting from various other idioms in the brain/mind and heart categories. The mind and brain related terms were frequently referenced as part of a causal pathway leading to more severe mental illness, with respondents citing these idioms as leading to craziness, particularly if they are not treated.

The terms *traumatized* and *tension* comprise a fourth grouping of idioms located between the mind/brain terms and the heart terms. Similar to the term *frustration,* the term *traumatized* was cited as referring to a condition that could result from a number of factors, including both heart and mind/brain idioms. *Tension* was described as stress or as a product of stress. As one respondent described, "if you thinking too much, it runs down into your brain and you develop pressure, you have tension, mental tension" (businesswoman, 41).

The location of several terms on the chart indicates the interrelatedness between clusters. *Tension, traumatized,* and *worrying too much* lie in between the brain/mind and the heart clusters, indicating that they are associated with both groups. Similarly, *heart cut* and *too much fear in you* lie between the heart-related terms and the terms related to fainting and unconsciousness. The last term, *go deep into a problem,* stood out on its own. Participants frequently excluded this term from the activity and indicated that it was not well understood.

Participants described multiple causal models that explain the interrelatedness between groupings of idioms. Some participants described how symptoms described in the mind/brain grouping or the heart grouping could lead to outcomes in the grouping of terms associated with losing consciousness. One person explained that "some children don't listen, it can cause pressure and could make you to fall off. If you thinking too much, it can make you to fall off" (businesswoman, 41). A common narrative that emerged placed distress idioms on a causal path leading to more severe mental illness if left untreated. One person, when talking about mental distress in general, said "I look at it like the person will become mentally ill. Because it's like placing a wound, a scar on that person's mind. Which needs cure. It needs cure and if not well taken care of it will intensify" (police officer, female, 30). Participants frequently cited a person's inherent capacity to handle certain stimuli, usually referring specifically to the heart and brain/mind. Once this capacity was breached, illness occurred. A traditional healer (male, 43) explained this process:

> Human beings have a level that you're supposed to think about. Your thinking supposed to stop. Sometimes when you're above that level, sometimes your

mind, you [do] things that you're not supposed to do. You are doing things that just [go] to craziness.

### Step 3: Chart Reviews

The review of 315 charts resulted in 189 charts with narratives in the patient history and presenting complaints sections. Further analyses revealed 65 mentions of 8 distinct physical symptoms associated with mental distress within these 189 charts (34.4% of charts with physical symptoms noted). Trouble sleeping was the most frequently mentioned symptom with 17 mentions, or 26% of all physical complaints including this symptom (see Table 1). Sleep trouble included trouble falling asleep, staying asleep, not sleeping enough, or sleeping too much. Headache was the second most common symptom, mentioned 15 times, followed by fast heartbeat (n = 8), problems eating, including lack of appetite or overeating (n = 7), unexplained body pain (n = 7), odd bodily sensations, including "feeling something walking on the body" or "feeling something walking on the head" (n = 5), feelings of weakness, tiredness, or lethargy (n = 4), and numbness (n = 2).

### Step 4: Screening Tool Development

Among the terms *heart spoiled*, *heart heavy*, and *heart not good*, for instance, participants chose the term *heart not good* as it is the most well understood of these three terms that refer to the same phenomenon. We included 11 terms in the final screener that were deemed to represent separate concepts relevant to mental distress. From the pile-sort analyses and resulting multidimensional scale visualization, we included 5 idioms each from the mind/brain cluster and the heart cluster, as well as the term *pressure* from the cluster related to losing consciousness. The final screening tool was divided into two parts and included 11 idioms of distress and 6 physical symptoms with each item accompanied by a question pertaining to functional impairment, and can be found in the Supplementary Materials in Appendix II. The approximate meanings of each term from the pile-sort activity can be found in Online Appendix III.

**Table 1** Physical symptoms extracted from patient charts

| Symptom | n | % |
|---|---|---|
| Sleep trouble | 17 | 26.2 |
| Headache | 15 | 23.1 |
| Fast heartbeat | 8 | 12.3 |
| Problems eating | 7 | 10.8 |
| Unexplained pain | 7 | 10.8 |
| Odd bodily sensations | 5 | 0.08 |
| Weak/tired/lethargy | 4 | 0.06 |
| Numbness | 2 | 0.03 |

## Discussion

This study examined local idioms of mental suffering to inform the development of an emic screening tool for mental distress. Through qualitative interviews, focus-group discussions, pile sorts, and chart reviews, we arrived at a list of 28 unique and non-stigmatizing idioms of mental distress, along with 8 commonly expressed physical symptoms. We included 11 idioms and 6 physical symptoms in a final draft Liberian Distress Screener (LDS) to be pilot tested in public-sector primary care settings.

The majority of idioms (75%) fell into two distinct groupings relating to the heart and to the brain/mind, which suggests the centrality of these types of terms to articulate mental distress in rural Liberia. Other studies in various settings have uncovered idioms of mental suffering related to the heart and to the head/brain/mind. Among Darfurian refugees, mental distress idioms fell into two distinct categories, one of which was *huzon*, or "deep sadness", which was also called "pain in the heart" (Rasmussen et al. 2011). In Haiti, idioms predominantly referred to *tét*, meaning head, or *ké*, meaning heart, in Haitian Kreyol (Keys et al. 2012). A study of South Asian women in Britain similarly found the heart and heart-related terms as central to communicating emotional distress. In Nigeria, the term *brain fag* denotes an amalgamation of symptoms related to mental exhaustion (Prince 1985). In our study, mental health clinicians reinforced the importance of the heart to mental distress, saying that, in the clinic, patients are more likely to cite problems with their heart than their brain or mind, either because the heart is not associated with mental illness and is therefore less stigmatizing, or because the heart is easier to conceptualize than the brain or the mind, especially in the most remote parts of Liberia. In Nepal, Kohrt and Harper (2008) also found distinct heart-mind and brain-mind associated idioms, and identified brain-mind problems as particularly stigmatizing (Kohrt and Harper 2008). Similar patterns of heart/mind interactions are apparent elsewhere in sub-Saharan Africa. In Nigeria, explanatory models regarding the condition *ode ori* include strings connecting the brain to other parts of the body, including the heart. The symptoms of this condition include palpitations and other cardiac symptoms, illustrating the linkage between the heart and brain (Makanjuola 1987). Further research can reveal specific etiologic patterns within ethnopsychologies related to heart and mind/brain idioms to determine their least stigmatizing utilization in a clinical setting.

The remaining idioms fell into three smaller groupings: one comprised of terms related to fainting or losing consciousness, another of terms that represented conditions or emotional states resulting from various other idioms, including heart and mind/brain idioms, and one separate term that was not well understood. The applicability of these terms in the identification and treatment of mental distress in a clinical context is perhaps less immediately useful, as these terms were mostly deemed ambiguous or stigmatizing, though an exploration of alternative explanatory models could reveal their value in the overall Liberian ethnopsychology.

The most salient idiom in our context was *frustration*, which falls in the mind/brain cluster of idioms but represents an emotional state resulting from various other

idioms in both the heart and the mind/brain categories. This idiom, while seemingly similar to the word "frustration" in other contexts, refers not to a passing sensation but to a state of being that is characterized by various other symptoms of distress. The chronicity of this condition is notable because idioms with a longer temporal aspect are thought, according to previous research, to be predictive of other expressions and manifestations of mental distress (Hinton and Lewis-Fernández 2010). This is also evident in explanations about how having a "man heart" was linked to physical resilience to other idioms of distress, whereas having a "weak heart" predisposes one to *frustration*. This usage of *frustration* may be unique to the Liberian setting, and suggests an alternative explanatory model for mental distress that is reminiscent of similar findings in Sub-Saharan Africa.

Several explanatory models emerged linking idioms of mental distress to other pathologies that are not necessarily linked to mental distress in biomedical nosology. Respondents associated idioms of mental distress, especially those in the mind/brain category, as a precursor to psychoses and more severe mental illness if left untreated. This mirrors findings in mainland China, in which *excessive thinking* was perceived as a salient cause of schizophrenia; among the Khwe in South Africa, in which *thinking a lot* could lead to madness; in the Peruvian Andes, where the Quechua term *pinsamientuwan*, or worrying thoughts, can evolve into *lukuyasca*, or craziness; and in Haiti, where *thinking too much* was endorsed as leading to *fou*, or madness (Yang et al. 2010; den Hertog et al. 2016; Pedersen, Kienzler, and Gamarra 2010; Kaiser et al. 2014). In this alternative explanatory model from the DSM and ICD, thinking too much is seen as a network of processes in which excessive negative rumination interacts with other psychopathological symptoms which can become progressively worse (Hinton et al. 2016). This aligns with non-Western alternative explanatory models that have been explored as alternatives to Western psychopathologies that see symptoms as indicative of underlying and measurable disease categories like PTSD, depression and anxiety. Network analysis sees symptoms or experiences of mental distress as clustered and interrelated, but not indicative of a latent condition (Borsboom and Cramer 2013). This interpretation creates the space for treatment of the symptom or network of symptoms as well as shifting the focus to holistic and community based-treatments that may not be grounded in Western biomedical treatment modalities.

Heart idioms were also referred to as precursors for illness, though these idioms were more commonly associated with physical illness. Respondents linked *heart cut* and other heart idioms to sickness and *pressure*, which shares many symptoms with hypertension and can lead to death. Similar connections exist in other settings, including among Punjabis living in Britain, where a *sinking heart* can lead to heart attacks, and among women in northern India, where *tension* is associated with high blood pressure and diabetes (Krause 1989; Weaver 2017). Physical somatizations of mental distress in other settings have been documented to play an important role in the expression of mental distress, and so the idiom *pressure* is important to note for its utility as an expression of both mental distress and physical symptoms (Kirmayer 2001). This idiom could also be a representation of the evolution of distress idioms over time, whereas what was formerly an expression of mental distress has been

increasingly associated with high blood pressure since the introduction of biomedical models of illness.

The second most salient idiom, *thinking too much*, aligned with findings in various settings worldwide. A recent systematic review identified 138 instances of this idiom in published literature related to communicating mental distress, though importantly, the interpretation varied widely and was not intended to be indicative of a universal condition devoid of nuance across cultures (Kaiser et al. 2015a). Similar to Kaiser et al.'s findings, *thinking too much* in the Liberian context was not considered stigmatizing, unlike many of the other mind/brain-related terms. While this idiom fell into the mind/brain category in our analysis, it is still indicative of the close association of mind/brain terms to heart related terms, which is evidenced by the respondent who referred to *thinking too much* in the heart. Similarly, *kufungisisa* in Zambia and South Africa, which translates to "thinking too much", was said to cause pain and physical pressure on the heart (Patel, Simunyu, and Gwanzura 1995). This idiom, for this reason, may not follow a specific DSM or ICD psychiatric construct, but nonetheless remains important in the articulation of mental distress.

The screening tool itself resembles screeners from other settings, including the Afghan Symptom Checklist and the Kreyol Distress Idioms in that it is comprised entirely of emic terms (Kaiser et al. 2013; Miller et al. 2006). Other tools, including the Shona Symptom Questionnaire and subsequent works, combine emic concepts and etic translations and have also been shown to have high reliability and internal consistency (Patel et al. 1997). One unique aspect of our screener is our inclusion of physical symptoms as a category separate from idioms of distress, though there was one term (*heart cut*) that was identified as a salient idiom and used to describe a physical symptom. The somatization of mental distress is common in many settings, especially where expressing overt mental distress may be less culturally acceptable, and was shown in our chart reviews to play an important role in the expression of mental distress in a clinical setting (Tylee and Gandhi 2005; Kirmayer 2001). Next steps are to refine and validate a formal screening tool by performing a quantitative analysis to test for the applicability and consistency of terms within the Liberian population. It's important to note, however, that the screener developed in this study is a preliminary version meant to catalogue and document salient distress idioms in rural Liberia. It provides the basis for the creation of a framework that builds mental healthcare from an informed and culturally resonant perspective.

## Limitations

The generalizability of our research was somewhat limited by geographical constraints. Lack of funding limited the geographic scope of the project to Maryland County, and thus the idioms of distress uncovered in this context may not be universal across Liberia. The interplay of culture and language changes over time, so a true understanding of communication of mental distress requires a continually updated recognition of linguistic nuances. Furthermore, non-English speakers were excluded, contributing to a lack of exploration of idioms within local dialects. Last, the nature of our study still approached our research question from a somewhat biomedical standpoint. Our aim was to work with the Liberian Ministry of Health

and Partners In Health to improve screening and treatment for common mental disorders as they are engaged in building community-based mental healthcare. Other research goes a step further and first identifies what community members perceive as the most salient problems that cause mental distress in their setting before cataloguing the articulation of distress. Our model started from the inherent assumption that the distress about which we were asking is indeed seen as a problem in this setting, and we strove to balance emic mental health research with the existing goals for service provision, which include the integration of valid and effective screening mechanisms into primary care.

## Conclusion

Understanding idioms of distress and communication surrounding mental suffering is essential for building culturally resonant mental healthcare. Liberian idioms of distress present several commonalities with mental health research in other settings, suggesting the universality of aspects of the experience of mental suffering. Important key differences, however, such as the salience of *frustration* in mental health discourse and the interpretation of mind/brain and heart idioms and interactions, reinforce the need for exploration of the variations of mental health communication cross-culturally. Research and interventions that prioritize building mental health programming from the grassroots by giving voice to local explanatory models, communication strategies, and pathways to care can better serve the communities in which they function.

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**Compliance with Ethical Standards**

**Conflict of interest** The authors report no conflict of interest.

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