Published in final edited form as:

Transcult Psychiatry. 2002 September ; 39(3): 323–344. doi:10.1177/136346150203900303.

The Khmer ‘Weak Heart’ Syndrome: Fear of Death from Palpitations

Devon Hinton,
Harvard University

Susan Hinton,
Harvard University

Khin Um,
Arbour Counseling Services

Audria Chea, and
North Suffolk Counseling Services

Sophia Sak
Boston University

Abstract

According to the Khmer conception, a person suffering ‘weak heart’ (*khsaoy beh daung*) has episodes of palpitations on slight provocation (e.g. triggered by orthostasis, anger, a noise, worry, an odor or exercise) and runs the risk of dying of heart arrest during these periods of palpitations; too, the sufferer typically has other symptoms attributed to the purported cardiac dysfunction: fatigue, shortness of breath, and orthostatic dizziness. Many Khmer refugees suffer this cultural syndrome, an anxious–dysphoria ontology, most probably of French colonial provenance. The syndrome demonstrates considerable overlap with those Western illness categories that feature panic attacks, in particular post-traumatic stress disorder (PTSD) and panic disorder. In a psychiatric clinic survey, 60 percent (60/100) of those assessed believed themselves to currently suffer ‘weak heart’; 90 percent (54/60) of those considering themselves to suffer from ‘weak heart’ thought that palpitations (e.g., those resulting from a loud noise or orthostasis) might result in death. The article illustrates the profoundly culturally constructed nature of ‘cardiac sensations,’ located in a specific historical trajectory and episteme; too, the article suggests that trauma may result more in panic disorder than ‘PTSD’ when autonomic arousal symptoms (in the present case, palpitations) are considered potentially life-threatening.

Keywords

Khmer refugees; panic attacks; panic attacks; PTSD; trauma

Heart Strengthening Medicine (*thnam chummnouy beh daung*).¹ If upon standing you feel dizziness; if you feel like you are going to have a black-out upon standing; if you are easily scared; if you have palpitations; if you endure chest pain; if you are always

Copyright © 2002 McGill University

Address: Southeast Asian Clinic, North Suffolk Counseling Services, 265 Beach Street, Revere, MA 02151, USA.
[devon_hinton@hms.harvard.edu].

Reprints: <http://www.sagepub.com/journalsReprints.nav>

¹For this article, the transcription system of Heder and Ledgerwood (1996) will be utilized.

out of energy; if you are frequently short of breath; or if you are always anxious; then this medicine will help you. (Package insert for Khmer herbal medicine – author's translation)

Thirty-eight-year-old Chea suffered a double trauma history, having survived the holocaust of the Pol Pot regime only to become a victim of domestic abuse in the USA. Long divorced from her abusive husband, she has recently engaged in intense conflicts with a boyfriend, these disputes rendering her vulnerable to unique and pervasive panic symptomatology. Chea began experiencing daily episodes of panic precipitated both by sudden noises and orthostatic panic attacks (on orthostatic panic in the Khmer population, see Hinton, Ba, & Um, 2001a, 2001b). Chea attributed these symptoms to her 'weak heart' and genuinely feared dying of heart arrest during these periods of palpitations. To self-treat her condition, Chea purchased a traditional Khmer herbal medicine at a local Cambodian store. The herb-filled plastic pouch displayed a colorful collage featuring Cambodian workers actively engaged in various traditional tasks: a farmer vigorously laboring in fields abundant with rice, a harvester of palm fruit agilely climbing toward the summit of a tree, and laborers steadily supporting heavy loads on their heads or shoulders. All these images, while keenly familiar, here were used with the aim of connoting vigor and focused engagement in one's daily routine, presumably as a result of taking the enclosed herbal remedy. Highlighting the promise alluded to by the imagery was the more forthright proclamation, 'Medicine for Increasing Energy,' which spanned one corner of the package. Tucked inside the bag was an instruction sheet headed in bold leaders with the rubric, 'Heart Strengthening Medicine,' followed by the various claims translated at the opening of this article. The instruction sheet detailed the range of efficacy and gave directions for preparing the herbs, which, it explained, should be boiled much like a tea, with the resultant liquid to be ingested twice daily.

Several authors have noted the frequency with which Khmers articulate distress with heart complaints. In what is arguably the most detailed work to date delineating Khmer medical and psychological beliefs, based on work among Cambodian refugees in the Dallas area, Lambert (1986) notes the following regarding the Khmer conceptualization of 'weak heart' (*khsaoy beh daung*): it serves as a common manifestation of psychological distress; it represents a severe manifestation of 'wind illness' (for a description of 'wind illness,' see below); it is potentially life-threatening because of the potential for 'heart stoppage' (*steah beh daung*); and it is usually treated with orally administered drops obtained from France which are considered a heart stimulant. Additionally, Lambert presents a brief case of 'weak heart,' arguing that the disorder is a local manifestation of post-traumatic stress disorder (PTSD). Another clinician, Herbst (1992), in her article on Khmer refugees in the Chicago area, reveals that the second most frequent complaint, after headache, was 'heart attack.' A Khmer psychiatrist (Bunthoeun, 1998) notes that 'neurotic and stress disorders' are locally described as heart deficiency and such cardiac dysfunction is believed to cause poor circulation and cold extremities. However, despite these suggestive observations, no one to date has offered a detailed description of this Khmer 'weak heart' syndrome – and the associated so-called 'heart attacks' – nor has anyone conducted a survey of the prevalence of the disorder in a particular population.

The authors of the present article found that among Khmer patients attending psychiatric clinics in Lowell and Revere, Massachusetts, 'weak heart' came to the fore as an extremely common presentation of distress. In fact, it appeared to be a unique illness category that almost always featured panic attacks, and, more specifically, could be said to function as a local anxious–dysphoric syndrome overlapping considerably with the two DSM-IV categories of PTSD and panic disorder. Our team decided to undertake an ethnographic investigation of the patient's conception of the disorder as well as conduct a survey of the prevalence. The resulting article contains the following sections: a study of the prevalence in a psychiatric population of 'weak heart' and fears of cardiac demise; three detailed cases; an analysis of the ethnophysiology and

metaphors of the disorder; pre-Pol Pot treatment; French colonial origins; status as a privileged Khmer traumatic ontology; similarities to a former Western trauma ontology; a call for the study of the symbolizing heart; and the role of the beating heart in invoking memory.

The Prevalence of Weak Heart among Khmer Refugees

Methods

One hundred consecutive patients attending two outpatient psychiatric clinics were queried as to whether they currently believed themselves to suffer 'weak heart' (*khsaoy beh daung*). If the response was affirmative, the patient was asked if she or he feared death from 'heart jamming' (*keang beh daung*) during palpitations. If the response to the initial question was negative, the patient was then asked if she or he had suffered 'weak heart' previously.

The interviews were conducted by the first author assisted by bicultural workers. The first author, a psychiatrist, is the medical director of two community-based Southeast Asian clinics, one in Lowell, the other in Revere, Massachusetts, is nearly fluent in Khmer, and has training in anthropology (Hinton, 1999).

A previous study profiled the patients at these two clinics (Hinton, unpublished data). In that SCID-based survey of anxiety disorders in 100 patients, the following rates of disorder were found: PTSD (60%), panic disorder (50%) and general anxiety disorder (30%).

Results

The mean age of patients in the sample was 45. Of the 100 patients surveyed, 70 were female. Most patients were unemployed, many receiving disability benefits and spending a majority of their time tending the house-hold and caring for children and grandchildren.

Overall, 60 (60%) of those surveyed stated they presently suffered 'weak heart'; 90% (54/60) of those suffering weak heart feared death due to the syndrome, especially at times of palpitations (e.g., those induced by orthostasis, startle or anger). Only 25 had never suffered 'weak heart.' Hence, 75% either currently suffered or previously had endured the condition of 'weak heart.'

When analyzed by gender, women had a higher prevalence of 'weak heart'; 64% of 70 female patients (45/70) felt they presently had a weak heart condition. In contrast to this, 50 percent of males (15/30) admitted to currently suffering from weak heart.

Case Vignettes of Weak Heart

Case 1: San

While preparing for an exam at a prestigious Phnom Penh school, the 15-year-old, San, dedicated most of her waking hours to studying, sleeping a mere four hours per night; on one particular morning San stood up, felt dizzy, and collapsed on the ground in a state of unconsciousness. The school physician ascribed her syncopal episode to 'heart weakness.' He advised San to stop studying so assiduously and to sleep more fully, warning her that otherwise the condition might become fatal. But because she considered studying French to be her most fulfilling life commitment, San disregarded the doctor's advice and continued to exert herself despite the perceived risks and notwithstanding her family's fears that such strains could be life-threatening. San subsequently suffered syncopal episodes about once every two months. In addition, she developed exercise-induced palpitations, causing her to worry that heart arrest might occur during exertion; she there-after avoided strenuous physical activity.

During the Khmer Rouge occupation of Cambodia, San, like so many others, suffered extreme torture, including on one occasion losing consciousness following a severe blow to the head. Following the Pol Pot period, she suffered twice monthly syncopal episodes and startle- and flashback-induced palpitations almost every day. San believed that poor sleep had weakened her body and exacerbated her ‘weak heart’ condition. Her syncopal episodes diminished only after arriving in the United States of America and receiving interventions at our clinic. Upon presentation to the clinic, the patient was found to suffer PTSD, panic disorder, general anxiety disorder and major depression by SCID-based interview. Her treatment involved starting medication for panic disorder and insomnia (clonazepam and paroxetine), and educating her about the catastrophic cognitions and trauma associations to dizziness that contributed to her sense of terror upon standing and feeling dizzy (e.g., the memory of being injured by the Khmer Rouge). During the initial period of treatment, San stopped suffering fainting episodes: though she continued to feel dizziness sensations upon standing, San learned to shift herself back into a lying position while maintaining consciousness, with the ensuing panic attack lasting about 30 minutes.² Now completing a year of treatment, the patient has had only one more syncopal episode and no longer experiences orthostatic panic. Of note, San is now 45, and this is the first time since the age of 15 that she has been almost completely free of syncopal episodes. However, because of the persistence of noise-induced palpitations, she still considers herself to have a weak and vulnerable heart.

Case 2: Sok

Sok, now a 48-year-old male, started to suffer ‘weak heart’ while in military school in Cambodia. He attributes the onset of illness to excessive study and also to sleep deprivation in those teenage years, resulting in the onset of typical weak heart symptoms: orthostatic panic, palpitations, exhaustion (*leuhai leuhai*) and body trembling. Upon presenting with the aforementioned complaints to a Cambodian physician, two treatments were prescribed which, in fact, seemed to cure his condition. First, the treating physician administered a bag of intravenous fluid as a means of bodily strengthening. [This fairly common traditional mode of increasing bodily energy is still sought out by Khmer in the USA where it is generally available at Vietnamese clinics.] And second, Sok was told how to prepare a daily oral medicine to be taken over the course of a month: he was instructed to pulverize a shell from a particular fresh water mollusk and then place it in a water-containing bamboo tube, heating the bamboo vessel in a fire until a thick paste resulted.

Several years later, when Sok was in his early twenties pursuing coursework in France, he again drove himself to the point of exhaustion in order to prepare for his exams; owing to sleep deprivation and overwork, he suffered a relapse: noise-induced startle; palpitations upon engaging in any strenuous activity, even climbing the stairs; and, at least once each day upon standing, palpitations and dizziness for three minutes. The French doctor advised him to rest and to refrain from all physical activity, diagnosing Sok as having ‘a weakness of the heart’ (*faible de coeur*) due to excessive mental work and physical exercise (*surmenagement physique, surmenagemnet intellectuel*). The physician also prescribed two treatments. One of the ‘heart treatments’ (*cure de coeur*) involved soaking for 20 minutes twice per day in a mud bath for three consecutive days. For the other treatment, the physician prescribed a medicinal drink (*calcium de corbiere*) – containing both vitamin B12 and calcium – to improve Sok’s energy levels and restore health to his heart; each day, the patient diligently snapped off the top of the ampule and drank the contents of one vial.

²Of note, studies show an association of panic disorder and syncope (Linzer et al., 1990). Too, a recent article suggests that dizziness-focused panic episodes may result in bradycardia rather than tachycardia (Massana et al., 2001). Hence, certain patients may stand, feel dizzy, worry about imminent death; subsequently, the panic attack causes bradycardia and syncope. In fact, Khmer patients commonly experience orthostatically triggered syncopal episodes, most often concurrent with orthostatic panic episodes. Both the orthostatically caused syncope and panic resolve upon successful treatment of the panic disorder.

After this second bout of ‘weak heart,’ Sok improved but remained acutely cognizant of the fact that he possessed a vulnerable heart organ. So, whereas previous to the diagnosis of ‘weak heart,’ Sok had avidly participated in rigorous activities such as kung fu, subsequent to becoming aware of the supposed limitations imposed by heart weakness, he restricted all unnecessary physical activity including his beloved martial arts regimen, for fear of heart strain. Not surprisingly, Sok’s ‘weak heart’ symptoms re-emerged in the Pol Pot period during which he, like so many others, was subjected to constant physical and mental strain. Finally, many years after having arrived as a refugee to the USA, Sok sought treatment for his palpitations at another psychiatric clinic. After treatment with a selective serotonin-reuptake inhibitor (SSRI), Sok once again considered himself cured and stopped attending the clinic. About eight months later, however, rising tensions at home triggered a relapse. Sok had grown extremely upset with a teenage son who recently had joined a gang, started skipping school regularly, and often returned home at night at an alarmingly late hour. Experiencing a relapse of symptoms, Sok decided to resume psychiatric treatment, but this time at our facility, as his former clinic had closed down in the interim; Sok identified ‘weak heart’ as his chief presenting complaint, ascribing his condition to excessive worry and poor sleep resulting from recent problems, particularly those involving the troubled teenage son.

At his most recent psychiatric intake (his SCID-based diagnosis being panic disorder), the first author queried Sok as to why he considered himself to have a ‘weak heart.’ Sok explained that, first, whenever he felt angry, which occurred about twice a week, he experienced palpitations and shortness of breath; during these episodes, he feared death due to cardiac arrest. And second, almost every morning upon standing-up for the first time, he endured severe orthostatically induced dizziness and was compelled to lie down again; while in the supine position, Sok tried to alleviate the matinal panic attack by meditating on the action of his breath. During such an attack, he experienced palpitations, dizziness, sweating, shortness of breath, and fears of death, with this constellation of symptoms lasting about 15 minutes. Sok explained that dizziness upon standing is considered a key indicator of weak heart, as are palpitations in response to anger or startle. Too, he explained, the sufferer of weak heart often becomes short of breath, especially during palpitations, as if there is not enough energy in the body to run the action of breathing, as if a disordered heart were not able to drive ‘the piston of breathing.’ Trying to account for his recent onset of panic attacks, Sok took to quantifying his situation; he explained that his energy level prior to the onset of problems with the troubled son had reached the steady and tolerable level of about 80 percent its normal capacity, but following the conflicts it had dropped precipitously low, to about 35 percent. He attributed this energy drain to ‘thinking too much,’ especially about his son. The low energy state, he explained, had caused him to suffer palpitations, while the palpitations, themselves, had caused shortness of breath, especially upon standing. As he moved his finger up and down along his sternum, he claimed that breathing was like the piston of an automobile engine or the action of a bicycle pump. His now enfeebled heart was too weak to propel respiration, just as, in a similarly clattering way, an engine on empty, moves the car pistons inefficiently. Each time he stood up, his heart, like an old engine running out of gas, could not meet the challenge, so it started knocking, and since the heart could not drive the piston of breathing, shortness of breath also ensued.

At the next visit, two weeks later, after starting an SSRI and benzodiazapine, the patient related that he still suffered five minutes of orthostatically induced panic attacks in the morning upon arising, but the attacks were shorter and less severe, this decreased severity reflected in the fact that he now could sit until the panic attack passed rather than having to lie down as was formerly the case. Upon his return visit one week later, the orthostatic episodes were no longer occurring. In a reflective mood that particular day, Sok offered some general comments regarding shifting attitudes toward weak heart. He asserted that Khmer villagers in the pre-Pol Pot era spoke only of ‘bodily weakness’ (*khsaoy gamlang*) and not ‘heart weakness’ (*khsaoy beh daung*), whereas

urban Khmer talked in terms of ‘heart weakness.’ At present, though, he asserted, almost all Cambodians in the USA – regardless of whether they came from a Khmer village or larger urban area – have been influenced by the constant references on American television and by American physicians to the risk of heart attack; as a result, they worry incessantly about ‘heart weakness’ and the related disorder of ‘heart stoppage’ (*keang beh daung*).

Case 3: Soun

When first interviewed, Soun, a 58-year old male, suffered from PTSD (diagnosis by a SCID-based interview). Although the symptoms improved on an SSRI, he subsequently developed ‘weak heart’ and met the diagnosis of general anxiety disorder and panic disorder. Soun complained that recently he had been experiencing panic attacks whenever he took out the trash, this a task involving descending several flights of stairs. Each panic episode lasted about half an hour and was characterized by palpitations, blurry vision, sweats, shortness of breath, and fear of death. When he spoke of panic attacks, Soun moved his hand up and down the sternum, simultaneously explaining that it was as if the ‘piston of breathing’ did not move smoothly. Soun bemoaned that he felt like an old car on empty: the pistons were deteriorating, fuel was running out, and the engine was knocking. Then, turning to a different metaphor, he added that the energy in his body felt depleted, as if the lantern that was his life had scant kerosene remaining.

In addition to the panic attacks which plagued him when taking out the trash, Soun also developed palpitations whenever he heard a loud sound or encountered the smell of vinegar or bleach; the palpitations made him acutely afraid that he would die from heart dysfunction. About twice a week around 5 p.m., he would feel especially enervated and then would notice his heart beginning to pound vigorously in his chest, a panic attack ensuing. Drinking a glass of orange juice seemed to stop these palpitations. [Note once again the underlying reference to energy, as if the human body is metaphorized as a car: when low on gas, the engine will knock; but when able to refuel with an energy drink such as orange juice, cardiac power can be restored.]

Following two weeks of treatment with a benzodiazepine and an SSRI, Soun’s hunger-induced panic attacks completely stopped and his startle symptoms improved. However, the patient still suffered about five minutes of palpitations and approximately ten minutes of shortness of breath after taking out the trash. Soun continued to consider himself a victim of ‘weak heart’ and worried that he might die from sudden cessation of heart function (and the related shortness of breath) during an episode of palpitations. The first author, the treating psychiatrist, then increased his benzodiazepine dosage and made a cognitive-behavioral intervention by reframing palpitations as simply a case of the heart ‘exercising itself.’ Following these adjustments, Soun no longer considered himself to have a ‘weak heart.’

Khmer Heart Metaphors and Ethnophysiology

Most frequently, a patient will attribute her or his ‘weak heart’ to a combination of heart instability (arising either from an inherited condition, emotional shock or aging) and low bodily energy. To convey heart distress and the conceptualization of the disorder, Khmer utilize certain tropes. The metaphors act as narrative themes (Kirmayer, 1992) that a patient may utilize depending on life history and the situation in which the particular conversation occurs.

A Dangerous Inner Energy Depletion

Working with Khmer patients, the first author noted the frequency with which they anxiously complained of feeling ‘weak’ (*khsaoy*). Multiple Khmer expressions describe a simultaneous state of bodily fatigue and psychic distress: some examples include the complaint of *khsaoy*

(i.e., ‘weak,’ conveying a sense of mental and bodily fatigue), *âh day âh jeung* (i.e., ‘out of energy in the legs, out of energy in the arms’), and *leuheut leuhai* (i.e., ‘fatigued, overworked, and with palpitations’). Low bodily energy has multiple origins, but psychic distress is said to play a major role. In a typical scenario, ‘worrying’ causes the person to ‘think too much,’ this excessive cogitation having two mutually reinforcing effects: first, it directly depletes inner energy thereby causing greater anxiety; second, this anxiety, in turn, results in poor sleep and food intake, further exhausting inner reserves. Patients routinely visit Vietnamese doctors for intravenous infusions and injections of medicines to increase bodily vigor and energy (e.g., see Case 2 above).

Only later did the first author realize the main concern underlying these preoccupations: a weakness of body implies a ‘weakness of heart’; and weakness of heart has been elaborated by the Khmer into a full-fledged cultural syndrome called ‘weak heart.’ Khmers aver that a sufferer of ‘weak heart’ manifests a certain complex of symptoms, the core features of the disorder being palpitations on slight provocation, for example, from fear, anger, startle and orthostasis,³ and possible death during palpitations due to ‘heart jamming’ (*keang beh daung*).

Life is an Oil-Filled Lantern

In explaining concerns about the heart, some Cambodians compare the life force with a lantern (see Case 3 above). At times of illness or old age, the flame dims as the level of kerosene declines. Likewise, when the body weakens, so too does the heart.

The Heart as a Pump

Yet still, many Khmer describe the heart as a mechanical pump (see Cases 2 and 3 above). According to this conception, the body contains multiple hollow tubes, roughly equivalent to our arteries; the heart’s chief function is to pump wind and blood along these vessels. If the pump is debilitated, however, wind and blood will fail to course smoothly and reliably throughout the body; hence, the sufferer of weak heart is likely to experience dizziness when adjusting to an upright position as the enfeebled heart necessarily must fail in its key task of pumping sufficient blood to the region of the head.⁴ The use of this pump image is in keeping with the observations of Bunthoeun (1998), as described above, who discusses how anxiety symptoms, such as coldness in the hands and feet (due to peripheral vasoconstriction), are construed by Khmer as resulting from cardiac dysfunction, conjuring images of poorly perfused extremities.

The Heart as an Automobile Engine

Some Khmer patients also use a car metaphor to explain ‘weak heart’ (see Cases 2 and 3 above). A person advancing in years is likened to a dilapidated vehicle, and the heart is compared with a worn-out engine with only a few still-functioning pistons. A Khmer may explain that just as a run-down car that is nearly out of gas may develop a mechanical knocking or rattling, a sound which is particularly evident when the vehicle tackles an incline, so too a person suffering

³In cases of weak heart, orthostasis may only be accompanied by dizziness and not palpitations.

⁴Two main explanations are invoked upon standing and feeling dizzy: First, the patient may consider that standing results in cold hands and feet (*troechea dai troechea choeung*) as wind and blood rush upward toward the trunk and head. In this case, the patient worries about ‘wind overload’ (Hinton, 2001a, 2001b). In fact, because of the physiology of the body, standing does result in a drop in temperature in the legs and arms from vasoconstriction. Upon feeling these sensations, the patient may worry about high blood pressure, neck rupture, stroke, and wind overload (less commonly, the dizziness will be attributed to low blood pressure). Second, the patient may consider that standing challenges the heart. Some patients compare an act of standing that results in palpitations to an old car’s struggle to reach the top of a hill; in both cases – the person standing and the car ascending a hill – there is a testing of a mechanism: the heart in the one instance, an engine in the other.

‘weak heart,’ especially when low in energy, will experience palpitations, even on slight exertion, but most noticeably upon undertaking more formidable physical challenges.

The machinery metaphors used to describe ‘weak heart’ are further elaborated in the term ‘jammed heart’ (*keang beh daung*); the word ‘jammed’ is also used to describe a car engine that has mechanically malfunctioned and therefore come to a standstill. ‘Jammed heart’ refers to a sudden halting of cardiac function, the same term used to translate the American term for ‘heart attack.’ A Khmer affected by ‘weak heart’ worries that palpitations signal imminent heart dysfunction, a soon-to-be ‘jammed heart,’ just as a mechanical knocking indicates probable breakdown, a soon-to-be jammed engine. A mentally distressed and fatigued Khmer, upon feeling an abnormal chest sensation, may conjure in mind the image of an old engine, low on gas, with only a few functioning and abraded cylinders struggling up a hill, this comparison conveying a sense of labored workings and suggesting possible jamming.

Khmer patients almost invariably describe palpitations using the idiom, ‘the chest shakes’ (*nhuo daeum trung*). In this case, the chest is conceived as being like a car chassis while the heart acts as the inner engine, continuing the homology of person and car. And if the heart palpitates (in Khmer it is said, ‘the chest shakes’) and its action becomes perceptible, the person worries about having a defective heart; in the same way, the person will worry that a rattling sound in a vehicle is indicative of engine trouble. Here again, a parallel is drawn between the human heart and the automobile engine. Of note, Khmer, as relatively recent immigrants to this country, tend to live in greater poverty, and therefore are more likely than their wealthier counterparts to have experienced such worrisome aggravations as the sound of a knocking engine; it is an experiential metaphor and serves as a key conceptual metaphor guiding discourse about emotion and bodily dysfunction (Lakoff & Johnson, 1980).

The Heart Engine as Driving the Piston of Breathing

Some patients describe the act of respiration as a piston-like movement that continually propels air (and blood) through the vessels of the body. When describing breathing, patients frequently use a finger to gesture with an upward and downward motion along the sternum, comparing inhalation to the downstroke and exhalation to the upstroke (see Cases 2 and 3 above). Some liken this piston action to a bicycle pump: just as a bicycle pump directs a syncopated stream of air into the tire, so too does the ‘piston of breathing’ reliably propel sufficient surges of air throughout the body. Other patients analogize breathing to the piston action of a car engine; just as the car’s pistons are animated by the engine, so too the ‘piston of breathing’ is driven by the heart. If the heart is weak, then the ‘piston of breathing’ moves up and down feebly. Sometimes patients make the additional claim that just as the cylinder shafts of a car develop surface irregularities after long use, so too, as the person ages, the smooth motion of breathing becomes labored because of similar abrasions caused by mechanical wear-and-tear on the human breathing organs.

Pre-Pol Pot Treatment of Weak Heart

Prior to the Khmer Rouge period, weak heart was a common ailment in Cambodia among city-dwellers, a frequent presentation of disorder in Khmer medical settings, a uniquely Cambodian construction of anxious dysphoria, and one which demonstrated considerable overlap with what we refer to as PTSD and panic disorder. Not uncommonly, sufferers of ‘weak heart’ sought treatment in general medical settings, considering the disorder to be a potentially fatal somatic condition. Khin, a co-author of the present publication and a former nurse, directed one such outpatient clinic before the Khmer Rouge took over the country. He explained that most patients who attended his clinic were city-dwellers. Khin estimates that more than 20 percent of his patients presented with the chief complaint of heart weakness. These patients were both male and female, usually 35 years of age or older. Such persons suffered dizziness

and palpitations upon standing, palpitations on exertion, as well as frequent startle and shortness of breath.

Like most of his colleagues, Khin had several types of treatment available for the patient presenting with ‘weak heart.’ For mildly affected patients, Khin would prescribe a vial of medicine called ‘*confo*.’ The patient would be instructed to drink it in the morning in order to fortify the heart. If Khin deemed the case more severe, he would administer an IV into which he had injected both ‘vitamin B-12’ to increase bodily blood and also ‘*salucamphre*’⁵ in order to stimulate the heart and increase its ability to contract. Khin informed his patients that subsequent to the injection, the heart would be restored to its original vitality. Promoting a sense of efficacy, ‘*salucamphre*,’ when injected in sufficient quantity, produces in the nose the menthol-like smell of a familiar local fruit. The odor also resembles the fragrance emitted from the ubiquitous sniffers traditionally used to clear the nose and lungs and fortify the heart. (Sniffers with a menthol-like ingredient represent one traditional treatment for weak heart. When inhaled, the aroma from these often ornate containers delivers a sense of invigorating and dilatory flow that seemingly surges all the way to the heart.⁶) While injecting into the IV, Khin would ask the patient if he or she had yet detected this aromatic essence. Once the patient responded affirmatively, he knew a sufficient dose had been administered. Of note, Khmers are extremely concerned about blockage in the vessels of the body and the trachea (in Khmer, the ‘tube of the throat’ [*bâmpueng kâ*]) as well. The patient, upon discerning the menthol fragrance created by the *salucamphre* injection, would experience a dilatation of the nasal passages and a sense of airway opening and heart strengthening associated with the smell of the sniffer. Then, using analogical thinking, Khin would suggest that the injection had the power to simultaneously expand not only the nasal passages but also ‘the tube of the throat’ and all the vessels transversing the body; Khin further assured the patient that smooth breathing should be restored and that the heart’s incessant struggle to pump wind and blood against all obstacles should be eased now that vessel blockages had been cleared by the injected medicine. Khin would build further confidence in the potency of his cure by speaking of one additional virtue of the injection – its ability to invigorate the heart.

Weak Heart: From French Medical Category to Khmer Idiom of Distress

Khmer patients – former villagers and city-dwellers alike – agree that villagers rarely spoke of ‘weak heart’ but instead focused on ‘*kyol goeu*’ (the latter a syndrome of ‘wind overload’ that leads to fainting and sometimes death; see Hinton et al., 2001a, 2001b) and excessive bodily wind believed to cause various ailments (Hinton, Ba, & Um, 2001c). Given Cambodia’s former status as a French colony and the fact that during the colonial period all Khmer doctors had trained in France, one would expect considerable cultural borrowing, with foreign-trained doctors acting as a prime agent of this influence. Certainly, many of the medicines used for the condition of ‘weak heart’ had their origins in the French pharmacopoeia (e.g., to translate into Western parlance, ‘*confo*’ is a fine ‘cordial’).

⁵To date, we have been unable to determine the chemical nature of some of the ‘cardiac tonics’ such as ‘*salucamphre*’. However, we have ascertained the chemical properties of another popular cardiac tonic: ‘*coramine*’. *Coramine* comes as a fluid-filled small ampule. The contents could either be taken orally or injected. One patient, whose mother worked in the royal palace, related that King Sihanouk’s mother was fond of using this cardiac tonic. The patient’s own mother had plenty of opportunity to experience palpitations and consume these drops, the patient recounted, due to the duress caused by the fact that her husband had many wives. *Coramine* was-and still is-used in both Cambodia and Vietnam (in Vietnam, it is also used for ‘weak heart’). A visit to the French web site (www.biam2.org/sub2418.html) of the pharmaceutical company that still produces the substance reveals the following. *Coramine* was discovered in 1928, and it was one of the first cardiac stimulants. The company states that the main active ingredient is ‘nicethamide’. The given indications for use are a predisposition to fainting and states of fatigue. The pharmaceutical company further asserts that nicethamide acts not only as a cardiac and respiratory stimulant but also as coronary arterial dilator; therefore the agent may be used for arterial hypotension, shock, cardiac and respiratory insufficiency, and coronary insufficiency.

⁶Laotians also use sniffers to self-treat for a common cultural syndrome focusing on the heart (Hinton, 1999).

Educated patients confirm that the Khmer notion of ‘weak heart’ (*khsaoy beh daung*) was, in pre-Pol Pot times, an illness of city dwellers ultimately originating from France, a translation of the French phrase, *‘faible de coeur’* (literally, ‘weakness of heart’). Too, a large number of patients explain that in the pre-Pol Pot era, students were among the main sufferers of the disorder (see Cases 1 and 2). Weak heart was considered life-threatening and was thought to result from excessive mental work, leading to bodily weakening, heart weakening and palpitations on slight provocation (e.g., orthostasis, an odor, startle, exercise-induced palpitations). Of note, the complaint of ‘weak heart’ among pre-Pol Pot Khmer students shares similarities to the oft-cited student-overwork syndrome of ‘brain fog’ as described by Prince (1960).

Weak heart appears to have been borrowed from France, becoming a widespread expression of dysphoria among both students and city dwellers, and later gaining a ubiquitous presence as an anxious–dysphoric presentation in the post-Pol Pot period, the era in which Khmer refugees began arriving in the USA. It appears that just as ‘neurasthenia’ was a medical discourse borrowed from the West and localized into the Chinese context (see Kleinman, 1986), so too was the conception ‘weak heart’ seemingly imported.

Weak Heart as a Trauma-related Disorder

Mechanisms Resulting in an Epidemic of ‘Weak Heart’ Among Khmer Refugees

As this survey and the case vignettes illustrate, Khmer refugees often consider themselves to suffer from the syndrome of ‘weak heart.’ What factors could cause this extremely high rate of self-diagnosis? For one, as a result of severe trauma, Cambodians suffer autonomic dysregulation and considerable PTSD and panic disorder (Carlson & Rosser-Hogan, 1991; Kinzie et al., 1990; Kroll et al., 1989). These disorders result in frequent palpitations which, in turn, are viewed as telling evidence of weak heart. Fears of ‘weak heart’ then lead to a restriction of activity; as a consequence, palpitations are precipitated even more readily due to poor physical conditioning. It should also be recognized that during the Khmer Rouge takeover, the combination of starvation (which causes a drastic reduction in the actual muscle mass of the heart, itself, ultimately leading to heart failure, a process often responsible for the death of the anorexic; see Cooke & Chambers, 1995) and overwork experienced by the vast majority of Cambodians would have placed excessive physical strain on the heart of many an individual, causing frequent experiencing of palpitations and, in some instances, even death due to heart failure. In fact, Khmer often describe Pol Pot period deaths as due to heart arrest (*keang beh daung*) following a progressive weakening of the heart due to starvation. Thus, the pathway to frequent palpitations for many individuals might well have been forged during the Pol Pot period and may remain today as a physical vestige, a readily triggered somatic memory, of extreme personal and collective trauma.

In addition, on arrival in the USA, patients repeatedly hear laypersons, nurses, and physicians discussing the prevalence of ‘heart attacks.’ Since Khmer translate our term ‘heart attack’ with the same term that is utilized to describe death from palpitations, that is, ‘jammed heart’ (*keang beh daung*), cardiac fears are heightened. Likewise, the constant monitoring of blood pressure and discussions of related cardiac risk in contemporary America further create a hypervigilance to that organ. Too, many Khmer have high cholesterol and so are cautioned by healthcare professionals regarding the risk of heart vessel blockage should they fail to sufficiently control cholesterol levels. It is interesting to note that many Khmer believe that cholesterol will coagulate in the heart and in the extremities should the body become too cold. Using an analogy drawn from everyday life, patients compare cholesterol – which they usually refer to as ‘fat’ (*khlany*) – with the solid layer that forms on the top of a cooling beef stew. To prevent such coagulation, some Cambodians periodically apply heat to the extremities and chest. Of

note, then, the coldness in the extremities experienced during anxiety evokes fears of a fatty congealing of cholesterol in the limbs and the heart.

In sum, frequent palpitations due to PTSD, panic disorder and poor conditioning, suggest to the patient that she or he has the potentially fatal condition of ‘weak heart’, whereas constant mentioning of ‘heart attack’ by laypersons, popular press, and medical personnel, does little to allay traditional worries of imminent cardiac demise. Consequently, frequent palpitations, overconcern about cardiac sensations, and the arousal–reactive nature of the heart rate (Taylor, 1994), all combine to create the escalating spiral of arousal not infrequently suffered by the Khmer refugee.

‘Weak Heart’ as Causing Khmer to Suffer a Panic Disorder-Type Traumatic Ontology

Let us now examine in more detail how the cultural syndrome of ‘weak heart’ influences the patient’s experiencing of trauma-related autonomic arousal. If a patient develops palpitations in response to a loud noise, the attentional gaze does not turn to external threat, but rather to a worried contemplation of cardiac status; in such a situation, the startle response triggers a ‘panic attack of the panic disorder type’; that is, the focus is on bodily state and fear of death from organ dysfunction and not on external threat.⁷ This contrasts to the Vietnam veteran who hears a loud noise, remembers a particular battle scene, and swiftly hides under a table in fear. Similarly, if a Khmer patient develops palpitations when angry (irritability being a key aspect of PTSD), this affect quickly changes to fright as the patient considers that these palpitations may result in cardiac arrest. In other words, ‘a panic attack of the anger type’ becomes ‘a panic attack of the panic disorder type.’⁸ Likewise, a high rate of panic disorder among Khmer psychiatric outpatients (53 of 89 [60%] suffered panic disorder according to one survey; Hinton, 2000) results in yet more palpitations. Too, Khmers often experience orthostatic dizziness; and orthostatic dizziness is a central symptom of weak heart. (In the study of panic prevalence, we found that 26 of 89 patients [29%] suffered posturally induced panic attacks.) Hence, because of the cultural syndrome of weak heart, palpitations resulting from PTSD (triggered by anger and startle) precipitate a sense of imminent demise, whereas the palpitations and dizziness caused by panic disorder corroborate the self-diagnosis of cardiac dysfunction.⁹ In this case, PTSD-type panic attacks (e.g., palpitations triggered during startle, flashbacks, and anger) quickly trigger panic disorder-type panic attacks, namely, fear of demise from palpitations. In fact, the worried concern about acute demise due to cardiac arrest may suppress flashbacks and trauma associations, causing the episode to appear – and be experienced – simply as panic disorder in type (on worry-guided suppression of disturbing topics and imagery, see Borkovec & Lyonfields, 1998).

The Vulnerable Heart as a Western Panic Disorder Traumatic Ontology

Young (1995) describes how Western experiencing of trauma has undergone considerable historical shaping. As one aspect of historical variation in the embodiment of trauma, we would argue that in certain periods, cataclysmic events may result in a panic disorder-like presentation which emphasizes fear of death from bodily dysfunction rather than flashbacks and externally directed fear. Researchers increasingly consider trauma to result not only in what we call PTSD but also in panic disorder (Gorman, Kent, Sullivan, & Coplan, 2000; Kellner & Yehuda,

⁷In a recent study, the first author found 65 of 100 Khmer psychiatric out-patients (65%) surveyed to have endured episodes of startle-induced palpitations in the previous month, and of these patients, 37 (i.e., 37% of all patients surveyed) feared death due to ‘heart jamming’ when experiencing startle-induced palpitations (D. Hinton, unpublished data).

⁸In a recent survey, this author found 52 of 100 Khmer psychiatric outpatients (52%) to have endured episodes of anger-induced palpitations in the last month, and of these, 36 (i.e. 36% of all patients surveyed) feared death due to ‘heart jamming’ when experiencing the palpitations (Hinton & Otto, manuscript submitted for publication).

⁹No doubt, the weak heart syndrome contributes greatly to the catastrophic cognitions that generate panic disorder (Otto & Deckersbach, 1998) and plays a key role in the genesis of the high rate of orthostatically induced panic seen among Khmer patients.

1999). Some argue, in fact, that PTSD and panic disorder are similar entities, both having panic attacks as the key characteristic. Cultural conceptions seemingly shape local traumatic ontologies, determining the emphasized aspect of arousal, the degree to which arousal indicates possible death, and the meaning of that arousal; these variables profoundly influence whether so-called ‘panic-disorder panic attacks’ or ‘PTSD panic attacks’ will be experienced by the trauma victim. For example, what does a pounding heart mean to a Khmer versus to an American?

Of note, as discussed above, it appears that the Khmer notion of weak heart has French colonial origins. However, the professional and lay notion of a heart vulnerable to damage (here damage is indicated by palpitations, as in response to exercise) was prominent not only in France, but also in other parts of Europe, England, and the USA (see, for example, Deutsch & Kauff, 1927). Only in the context of this episteme can we understand certain cardiac syndromes previously present in the Western tradition and which also seemed to be mixed PTSD/panic disorder reactions to trauma. DaCosta’s syndrome, irritable heart, neurocirculatory asthenia, and effort syndrome all resemble panic disorder as much as PTSD. Observed among soldiers during the Civil War, World War I and World War II, the sufferers of these four syndromes manifest paroxysmal cardiac conditions without signs of pathology. Psychiatricians often claim that these syndromes are panic disorder equivalents (Katschnig, 1999; Marks, 1986). Afflicted soldiers complained of palpitations, breathlessness, dizziness, all precipitated by even slight exertion; this particular constellation of symptoms, naturally enough, led to such appellations as ‘effort syndrome.’ These syndromes are better understood when one takes into account the prevailing popular notion of ‘heart strain’ (Grant, 1926; Mackenzie, 1916). Accordingly, someone fearing that he or she suffered ‘heart strain’ would react with considerable fright to a slight increase of heart rate during exertion, this fear then causing further increase in pulse rate and general autonomic arousal. In other words, catastrophic cognitions ensued regarding ‘heart strain.’ Foreshadowing modern techniques of cognitive-behavioral therapy, some treaters emphasized graded exercise (Grant, 1926; MacKenzie, 1916), reconfiguring the heart as a flabby muscle in need of slow conditioning (Mackenzie, 1916).

Hence, it appears that there existed a Western episteme of heart concern, shaping the experiencing of trauma. Too, as mentioned above, the Khmer syndrome of ‘weak heart’ appears to have originated in the West, and hence, represents a traumatic ontology that is a distant relative to ‘effort syndrome’ and ‘DaCosta’s syndrome.’ Local semantic networks and perceptions of vulnerability regarding autonomic arousal sensations guide bodily surveillance, determining, for example, whether the trauma will result in a panic disorder presentation (internally focused fear, as in a beating heart evoking fears of imminent cardiac demise) or PTSD presentation (externally focused fear, as in a beating heart evoking fear of imminent assault). The embodiment of trauma is not a natural fact.

The Symbolizing Heart

Some ethnographers describe how the heart organ becomes metaphorized and utilized as a core symbol of emotional discourse (in Iran, see Good, 1977; among the Temiar, see Rosaldo, 1980; and for the Illongot, see Roseman, 1991). The complaint of ‘weak heart’ as a localized idiom of psychological distress appears to be prominent in Southeast Asian refugee groups. For instance, the first author has noted the commonality of weak heart as a presentation of panic and PTSD among Laotian speakers and described the related idioms and ethnophysiology, these being radically different from the Khmer case (Hinton, 1999);¹⁰ too, the first author has noted that Vietnamese patients often complain of ‘weak heart’ (*iw tim*; see Hinton et al., 2001d; Nguyen, 1982) and worry about death due to palpitations during startle or at other times. Or likewise, a recent article discusses the importance of ‘weak heart’ in the Chinese context as a presentation of anxiety and panic (Park & Hinton, in press). One would

expect a profound localization of the idiom of ‘weak heart,’ through variation in conceptual metaphors, interpersonal meanings, and ethnophysiology, to name a few variables.

Experiences associated with the heart may also act as memory triggers. Because the strongly beating heart acts as an element of various fear networks (Foa & Kozak, 1998), constituting part of the memory nexus of all the trauma events that the person experienced with a vigorously pounding heart, memories of those events variably activated when palpitations occur. Analogous to the oft-cited Proustian example in which the manner of tasting a *madeleine* may evoke remembrance, here the very activation of the body – the beating heart – may invoke and resuscitate feelings and memories of the past. Hence, to understand the meaning of a pounding heart both on an individual and societal level, these trauma experiences must be elucidated.

Conclusion

A large percentage of Khmer refugees attending a psychiatric clinic consider themselves to suffer the cultural syndrome of ‘weak heart.’ This self-diagnosis leads to continual fear of death from palpitations. This is an issue of no small consequence in a group that has endured horrendous trauma resulting in frequent psychogenic symptomatology, particularly palpitations. The present article suggests that the evaluation of palpitations varies among groups depending on local ideas of the vulnerability of the heart, specific symbolic meanings of the heart organ, and the linkage to a certain trauma history. Such understandings may profoundly influence the local manifestation of trauma, for instance, the relative rates of ‘PTSD-type’ panic attacks and ‘panic disorder-type’ panic attacks and the very meaning of a pounding and racing heart (note that even here metaphor informs the description of bodily experience; we speak of ‘beating hearts,’ a sort of thumping of the thoracic cage, a vestige of the Galenic conceptualization of the heart as actively moving and impacting upon the ribs; see Harris, 1973). Sympathetic activation is profoundly mediated by the local conception of the corporal and its workings and the way in which the body carries and evokes memory.

References

- Borkovec, TD.; Lyonfields, JD. Worry: Thought suppression of emotional processing. In: Krohne, HW., editor. Attention and avoidance: Strategies in coping with aversiveness. Göttingen, Germany: Hogrefe Huber; 1998. p. 101-118.
- Bunthoeun, P. Postgraduate thesis. Phnom Penh, Cambodia: Cambodian Mental Health Training Program; 1998. Explanatory models of mental health problems of outpatients at the psychiatric department of Preah Norodom Sihanouk Hospital.
- Carlson EB, Rosser-Hogan R. Trauma experiences, post-traumatic stress, dissociation, and depression in Cambodian refugees. *American Journal of Psychiatry* 1991;148(11):1548–1551. [PubMed: 1928471]
- Cooke R, Chambers J. Anorexia nervosa and the heart. *British Journal of Hospital Medicine* 1995;5:313–317. [PubMed: 8556209]
- Deutsch, F.; Kauf, E. Heart and athletics. St Louis MO: Mosby; 1927.
- Foa E, Kozak M. Clinical applications of bioinformational theory: Understanding anxiety and its treatment. *Behavior Therapy* 1998;29(4):675–690.

¹⁰At this point, the reader may wonder if the Laotian heart syndrome might have been borrowed from the French context or whether, in fact, it might be the origin of the Khmer conceptualization of heart distress. Several facts suggest the Laotian weak heart syndrome to be of some antiquity (see Hinton, 1999). For one, the disorder is highly emphasized in villages. Also, the Laotian heart metaphors emerge from the landscape and are not mechanical; for example, when suffering palpitations, a Laotian compares the heart with a mango swinging by its stem, there being a risk of the heart ‘snapping at the stem’ just as the mango often does when hit by a strong gust. In contrast, as discussed above, Cambodians consider ‘weak heart’ to be a disorder of city dwellers rather than villagers and the metaphors are highly mechanical; furthermore, Khmer hypothesize the disorder to be French in provenance.

- Good BJ. The heart of what's the matter, the semantics of illness in Iran. *Culture, Medicine, and Psychiatry* 1977;1:25–58.
- Grant RT. Observations on the after-histories of men suffering from the effort syndrome. *Heart: A Journal for the Study of the Circulation* 1926;XII:121–142.
- Gorman J, Kent J, Sullivan G, Coplan J. Neuroanatomical hypothesis of panic disorder, revised. *American Journal of Psychiatry* 2000;157:493–505. [PubMed: 10739407]
- Harris, CR. The heart and vascular system in ancient Greek medicine. New York: Oxford University Press; 1973.
- Heder, S.; Ledgerwood, J. Propaganda, politics, and violence in Cambodia. Introduction. New York: Sharpe; 1996.
- Herbst P. From helpless victim to empowered survivor: Oral history as a treatment for survivors of torture. *Woman and Therapy* 1992;13(1/2):141–154.
- Hinton, D. PhD dissertation. Ann Arbor, MI: Harvard University, UMI Dissertation Service; 1999. Musical healing and cultural syndromes in Isan: landscape, conceptual metaphor, and embodiment.
- Hinton D. Panic disorder among Cambodian refugees attending a psychiatric clinic: Prevalence and subtypes. *General Hospital Psychiatry* 2000;22(6):437–444. [PubMed: 11072060]
- Hinton D, Ba P, Um K. *Kyol goeu* ('wind overload') part I: *Kyol goeu* and orthostatic panic among Khmer refugees attending a psychiatric clinic; or cultural syndromes, catastrophic cognitions, and the generation of panic. *Transcultural Psychiatry* 2001a;38(4):403–432. [PubMed: 20852723]
- Hinton D, Ba P, Um K. *Kyol goeu* ('wind overload') part II: The prevalence, characteristics, and mechanisms of *kyol goeu* ('wind overload') and near-*kyol goeu* episodes of Khmer patients attending a psychiatric clinic. *Transcultural Psychiatry* 2001b;38(4):433–460. [PubMed: 20808711]
- Hinton D, Ba P, Um K. The sore neck syndrome among Khmer refugees; A panic disorder equivalent. *Culture, Medicine, and Psychiatry* 2001c;25:297–316.
- Hinton D, Nguyen L, Nguyen M, Pham T, Quinn S, Tran M. Panic disorder among Vietnamese refugees attending a psychiatric clinic: Prevalence and subtypes. *General Hospital Psychiatry* 2001d;23(6):337–344. [PubMed: 11738465]
- Hinton D, Otto M. Anger-induced palpitations among Khmer refugees. Manuscript submitted for publication. 2002
- Katschnig, H. Anxiety neurosis, panic disorder, or what? Panic disorder: Clinical diagnosis, management and mechanisms. London: Martin Dunitz; 1999.
- Kellner M, Yehuda R. Do panic disorder and posttraumatic stress disorder share a common psychoneuroendocrinology. *Psychoneuroendocrinology* 1999;24:485–504. [PubMed: 10378237]
- Kinzie J, David J, Boehnlein P, Leung L, Moore L, Riley C, Smith D. The prevalence of posttraumatic stress disorder and its clinical significance among Southeast Asian refugees. *American Journal of Psychiatry* 1990;147(7):913–917. [PubMed: 2356877]
- Kirmayer L. The body's insistence on meaning; metaphor as presentation and representation in illness experience. *Medical Anthropology Quarterly* 1992;6:323–346.
- Kleinman, A. Social origins of distress and disease: Depression, neurasthenia, and pain in modern China. New Haven, CT: Yale University Press; 1986.
- Kroll J, Hebenicht M, Mackenzie T, Yang M, Chan S, Yang T, Nguyen T, Ly M, Phommavanh B, Nguyen H, Vang Y, Souvannasoth L, Cabugao R. Depression and posttraumatic stress disorder in Southeast Asian refugees. *American Journal of Psychiatry* 1989;146(12):1592–1597. [PubMed: 2589553]
- Lakoff, G.; Johnson, M. *Metaphors we live by*. Chicago: University of Chicago Press; 1980.
- Lambert, J. PhD dissertation. Ann Arbor, MI: Southern Methodist University, UMI Dissertation Service; 1986. Khmer refugees in Dallas: Medical decisions in the context of pluralism.
- Linzer M, Felder A, Hackel A, Perry A, Varia I, Melville M, Krishnan R. Psychiatric syncope: A new look at an old disease. *Psychosomatics* 1990;31(2):181–188. [PubMed: 2330399]
- Mackenzie J Sir. The soldier's heart. *British Medical Journal* 1916;1:117–123. [PubMed: 20767982]
- Marks, I. Panic phobias: Empirical evidence of theoretical models and long term effects of behavioral treatments. Berlin: Springer-Verlag; 1986. Forward.

- Massana J, Lopez Risueno J, Masana G, Marcos T, Gonzalez L, Otero A. Subtyping of panic disorder patients with bradycardia. *European Psychiatry* 2001;16:109–114. [PubMed: 11311175]
- Mollica, R.; Poole, C.; Tor, S. Symptoms, functioning, and health problems in a massively traumatized population: The legacy of the Cambodian tragedy. In: Dohrenwend, B., editor. *Adversity, stress, and psychopathology*. New York: Oxford University Press; 1998.
- Nguyen S. Psychiatric and psychosomatic problems among Southeast Asian refugees. *The Psychiatric Journal of the University of Ottawa* 1982;7(3):163–172.
- Otto, M.; Deckersbach, D. Cognitive-Behavioral Therapy for Panic Disorder: Theory, Strategies, and Outcome. In: Rosenbaum, J.; Pollack, M., editors. *Panic Disorder and its Treatment*. New York: Dekker; 1998. p. 181-205.
- Park L, Hinton D. Dizziness and panic in China: Associated symptoms of zang fu organ disequilibrium. *Culture, Medicine, and Psychiatry*. (in press).
- Prince R. The 'brain fog' syndrome in Nigerian students. *The Journal of Mental Science* 1960;106(443):559–570. [PubMed: 14434928]
- Prosser N. Fatigue that doesn't go away. *New England Journal of Medicine* 1999;96(6):29–31.
- Rosaldo, M. *Knowledge and passion*. Cambridge: Cambridge University Press; 1980.
- Roseman, M. *Healing sounds from the Malaysian rainforest*. Berkeley: University of California Press; 1991.
- Taylor S. Comment on Otto et al. (1992): Hypochondriacal concerns, anxiety sensitivity, and panic disorder. *Journal of Anxiety Disorders* 1994;8(1):97–99.
- Young, A. *The harmony of illusions: Inventing Post-traumatic stress disorder*. Princeton, NJ: Princeton University Press; 1995.

Biographies

DEVON HINTON, MD, PHD, did his psychiatry training at Harvard and received his doctorate in Anthropology from Harvard. For his fieldwork, he spent three years in Thailand, working in a Laotian speaking part of that country. Half of the thesis discusses a panic disorder syndrome (weak heart) as it presents in a psychiatric clinic. He is nearly fluent in Khmer and Laotian, has a basic knowledge of Vietnamese, and currently acts as the Medical Director of two Southeast Asian clinics.

SUSAN HINTON, MA, received her BA from the University of California at Berkeley, double majoring in English and Anthropology, with a focus on Chinese culture. She received her Masters degree from the University of California at Davis in the field of Comparative Literature. After spending three years teaching, studying, and raising a family in Thailand, she currently is working on a book with her husband which incorporates research and insights from the work done on conceptual metaphors in Southeast Asia and applies these insights to understanding certain key tropes of emotional discourse in contemporary America.

KHIN UM served as a nurse in Cambodia. Before the Pol Pot invasion, he ran a medical clinic in a major Cambodian city. He presently serves as a bicultural worker/translator at Arbour Counseling Services in Lowell, MA.

AUDRIA S. CHEA, MSW, is a Cambodian bicultural social worker. Ms Chea was born in Cambodia and grew up in the United States of America. She has five years of mental health experience including two years working as a bicultural specialist/worker and one year performing a MSW student field placement at the Indochinese Psychiatric Clinic (IPC) at the Beth Israel Deaconess Hospital in Boston. In addition, she did a second year MSW student field placement and held the position of case coordinator at the Southeast Asian Community Clinic with North Suffolk Mental Health Association in Revere.

SOPHIA SAK received a BA in Sociology from the University of Washington in Seattle. Over the past five years, she has worked for the Department of Children and Family Services in California. She is currently a second-year MSW student attending Boston University. When the Pol Pot regime invaded the country, Ms Sak had just started elementary school.