

Embodied 'Basic' Emotions in Chinese and English Language

Subjects: Psychology | Language & Linguistics | Physiology
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References to the body are one feature shared across languages, particularly when describing the mental processes of emotion, reflecting the embodiment of an emotional experience. Embodied emotion concepts encompass these categorized outcomes of bidirectional brain–body interactions yet can be differentiated further into afferent or interoceptive and efferent or autonomic processes. Between languages, a comparison of emotion words indicates the dominance of afferent or interoceptive processes in how embodied emotions are conceptualized in Chinese, while efferent or autonomic processes feature more commonly in English. Correspondingly, in linguistic expressions of emotion, Chinese-speaking people are biased toward being more receptive, reflective, and adaptive, whereas native English speakers may tend to be more reactive, proactive, and interactive.

Keywords: emotion ; afferent ; Chinese ; English

1. The Varied Embodiment of Fear in Chinese and English

In both Chinese and English, many words describing *fear* make reference to the physical reactions and expression of autonomic bodily responses (e.g., change in heart rate, temperature, sweating, and shaking of the body). Nevertheless, there appear to be more emotion words in general usage in Chinese compared with English that are coded with reference to interoceptive physiological changes and sensations attributed to specific internal organs (mainly the heart, gallbladder, and liver) to express *fear*.

Table 1 lists the Chinese words and idioms expressing *fear* with reference to physical reactions or reflexes controlled by the autonomic nervous system and visceral words such as ‘heart’ (xin), ‘gallbladder’ (dan), and ‘liver’ (gan) that are used for expressing *fear*.

Table 1. Chinese embodied words and idioms labeling bodily states of *fear*.

Chinese Embodied Words and Idioms Labeling Fearful Bodily States	
Bodily States Controlled by the Autonomic Nervous System	
Fear as changes in complexion	<i>mian wu ren se</i> (face without a human’s color): as pale as death <i>da jing shi se</i> (losing color out of immense shock): turn pale with fright <i>jing kong shi se</i> (losing color out of shock and fright): pale with fear <i>lian se fa qing</i> (face blue in color): be overly scared <i>lian se sha bai</i> (complexion is deadly pale): turn pale with fright
Fear expressed in eyes and mouth	<i>mu deng kou dai</i> (eyes staring and mouth stupefied): stunned <i>mu deng kou jiang</i> (eyes staring and mouth frozen): dumbstruck <i>cheng mu jie she</i> (eyebrows rising and tongue tied): stare dumbfounded <i>cheng mu er shi</i> (raising eyebrows to see): stare at with wide eyes <i>zui chun fa bai</i> (white-lipped): frightened with lips turning pale or colorless
Fear as changes in hair and bone	<i>mao gu song ran</i> (with one’s hair and bones horrified or with one’s hair standing on end): shivers or being bloodcurdling <i>han mao dao shu</i> (with hair erected): very frightened <i>gu han mao shu</i> (bone chills and hair stands up): make one’s blood run cold <i>ji liang gu mao liang qi</i> (send chilly <i>qi</i> up somebody’s spine): absolutely terrified
Fear as changes in skin	<i>qi ji pi ge da</i> (with chicken bumps): goose bumps

Chinese Embodied Words and Idioms Labeling Fearful Bodily States

Fear in excretion of body fluids (sweat, urine, etc.)

xia de pi gun niao liu (so frightened that one's fart rolls and urine flows): scare the shit out of someone, be frightened out of one's wits, piss one's pants (in terror), or wet one's pants in terror
zhi mao leng han (cold sweat runs out): sweat bursts out in fear
nie yi ba han (pinch a handful of sweat): break into a sweat with fright (fear) or be breathless with anxiety or tension
yi shen leng han (be wet with cold sweat): be wet with cold sweat, be soaked in cold and clammy perspiration, be in a cold (icy) sweat, break out in a cold sweat, a cold sweat breaks out all over one's body, or one's body is covered with chilly sweat

Fear as body quivering

xia de hun shen fa dou (tremble from head to foot with fear): be all of a tremble, tremble with every inch of one's body, trembling all over, or trembling in every limb out of fear

Bodily Sensations Governed by the Interoceptive System

Xin (heart)

xin you yu ji (heart still fluttering): have a lingering fear, or still being in a state of shock
chu mu jing xin (touch the eyes and shock the heart): strike the eyes and rouse the mind, shocking, or startling

Dan (gallbladder)

hun fei dan sang (spirit flies and gall is lost): strike terror in one's heart

Dan and Xin (gallbladder and heart)

dan po xin jing (gall broken and heart startled): startled
xin dan ju lie (the heart and gall are broken into pieces): be frightened out of one's wits, be heart-broken and terror-stricken, lost in great astonishment, be so frightened that one's heart and galls burst, or terror-struck
xin han dan luo (heart is frozen and gall falls to the ground): be extremely terrified or terror-stricken

Gan and Dan (liver and gallbladder)

gan dan ju lie (one's liver and gall both seemed torn from within): extremely frightened, heart-broken, terror-stricken, or overwhelmed by grief or terror

Apparently, across multiple Chinese idioms, the expression of *fear* is embodied via agitation and trauma (such as shaking, trembling, dropping, tearing, splitting, and loss) of the internal organs such as the 'heart', 'gallbladder', and 'liver', often with reference to physical sensations attributed to these visceral organs (such as startled, panicked, broken, cold, frozen, chilly, weak, frightened, and timid).

Comparable Terms in English

The embodied words, idioms, and descriptions of *fear* and *fearful* states were collected from citations within *Roget's 21st Century Thesaurus (the 7th edition)* ^[1] (p. 337) and from ^[1] (pp. 70–73) as well as two on-line sources: Collins thesaurus (<https://www.collinsdictionary.com/us/dictionary/english-thesaurus/fear> (accessed on 4 January 2022)) ^[2] and <https://www.sketchengine.eu/skell> (accessed on 4 January 2022) ^[3]. These terms are shown in **Table 2**:

Table 2. English embodied words describing *fear* or fearful bodily states.

Bodily States Controlled by Autonomic Nervous System	
Fear as changes in complexion	e.g., She turned pale. You are white as a sheet.
Fear as inability to move	Paralyzed, stunned, weak-kneed e.g., I was rooted to the spot. He was so terrified he could not move.
Fear as inability to breathe	e.g., She was breathless or gasped in fear.
Fear as inability to speak	Dumbstruck, gape, tongue-tied, tongue stands still e.g., I was speechless or dumb with fear.
Fear as dysfunction in nerves	Nerveless, nervous, nervy, nerve-wracking, spineless
Fear as shrinking sensations in skin	Goosebumps, creeps e.g., That man gives me the creeps. A shriek in the dark gave me goosebumps.
Fear as hair straightens out	e.g., The story of the murder made my hair stand on end. That was a hair-raising experience.
Fear as drop in body temperature	Cold sweat, cold feet, blood-curdling, bone-chilling e.g., Just the face of the monster was enough to make my blood run cold. I heard a blood-curdling scream. A cold sweat of fear broke out.
Fear as body quivering	Agitation, heebie-jeebies, jitters, jumpy, quivery, shaky, trembling, tremor, tremulous, trepidation

Bodily States Controlled by Autonomic Nervous System	
Fear as (involuntary) release of bowels or bladder	e.g., I was scared shitless when I saw the man with the knife coming toward me. I was almost wetting myself with fear.
Fear as dryness in the mouth	e.g., My mouth was dry when it was my turn. He was scared spitless.
Visceral Sensations Governed by the Interoceptive System	
Heart	Chickenhearted, fainthearted, making someone's heart leap or one's heart gallop, heart in the boots, heart stood still, heart pounding, strike fear into the hearts of, terror into somebody's heart, heart in one's month e.g., His heart pounded with fear. My heart began to race when I saw the animal. His heart stopped or missed a beat when the animal jumped in front of him
Stomach	Butterflies in the stomach, collywobbles e.g., He got butterflies in his stomach. A cold fear gripped him in the stomach. I always get the collywobbles before an interview. Her husband went climbing mountains last weekend. It gave her the collywobbles to even think about it
Belly	Yellow belly e.g., My friend has a female yellow-bellied slider. This was no time for being some pasty yellow-bellied mama's boy.
Liver	Lily-livered e.g., She approaches songs and arrangements with a sense of adventure that makes almost everybody else sound lily-livered. We have lily-livered textbook publishers whose toned-down presentations pander to the worst of our society.

As shown in **Table 2**, the above examples demonstrate that there are many embodied words in both the Chinese and English expressing *fear*, and only a few English verbal expressions for *fear* refer to the internal organs, yet many more words are associated with bodily parts and physiological activation controlled by the autonomic nervous system. Although in both languages such embodied emotion expressions for *fear* refer to internal bodily sensations and to physiological reactions controlled autonomically, words relating internal organs are used to a much greater extent and more systematically in Chinese when compared with English ^[4]. This increased granularity and transparency of using internal organs such as the ‘heart’, ‘gallbladder’, and ‘liver’ to label *fear* in Chinese may be attributed to the strong influence of traditional Chinese philosophy and medicine when compared with the paucity and piecemeal use of interoceptive words (e.g., heart, belly, stomach, and liver) in contemporary English ^[4].

2. The Embodied Conceptualization of Anger or Being Angry in English and Chinese

In Chinese, the majority of the words and idioms labeling *anger* are embodied, which means they are related to specific bodily sensations and actions, including facial expressions, skin complexion, physical reactions, or behaviors encompassing changes or agitation within visceral organs, notably the heart, liver, and lungs. In addition, there are numerous *anger* words that refer to natural phenomenon words such as *qi* (air), fire, wind, and thunder, as shown in **Table 3**.

Table 3. Chinese embodied words and idioms labeling bodily states of anger.

Chinese Embodied Words and Idioms Labeling Bodily States of Anger
Bodily States Controlled by the Autonomic Nervous System

Chinese Embodied Words and Idioms Labeling Bodily States of Anger	
Anger in facial expressions, bodily reactions and/or behaviors	<p> <i>chi mian</i> (red faced): catch fire <i>zhe mian</i> (with a reddish brown face): very angry <i>yun rong</i> (an angry look): in a sulk <i>nu se</i> (an angry look): wear an angry look or look black <i>li se</i> (harsh countenance): stern <i>yao ya</i> (grit one's teeth): grind one's teeth in anger <i>qi de lian sha bai</i> (face is deadly pale with angry qi): get red with anger <i>lian hong bo zi cu</i> (with one's face red and neck swollen): one's face turns crimson (red) with anger, being red to the tip of one's ears, blue in the face, or flush with agitation (fury), get red in the face from anger or excitement or red in the face and fuming, or turn red in the gills <i>zha mao</i> (with hair stands up): blow up <i>chen mu e wan</i> (stare angrily and wring one's wrist): angry and courageous <i>heng mei leng yan</i> (flattened eyebrows and cold face): frown and look coldly <i>ji zhi nu mu</i> (point one's fingers at somebody and stare at him with angry eyes): point and look at somebody furiously <i>chen mu qie chi</i> (staring the eyes and gritting the teeth): staring and gritting with anger <i>fa zhi zhi lie</i> (with hair standing up and eye sockets tearing): boil with anger <i>liu mei dao shu</i> (willow leaf-shaped eyebrows risen): raise one's eyebrows in anger </p> <p>Bodily Sensations Governed by the Interoceptive System</p> <p> <i>nu cong xin tou qi, e xiang dan bian sheng</i> (anger springs from the heart, and evil grows to the gall): be furious and nurse thoughts of revenge <i>da dong gan huo</i> (violently stirred the liver fire): fly into a rage or hit the roof <i>ji huo gong xin</i> (acute fire attacks the heart): burn with anger <i>fei qi zha le</i> (the lungs exploded with qi): burst with rage </p> <p> <i>qi de tiao jiao</i> (with so much qi that one stamps): stamp one's feet with anger <i>fa pi qi</i> (qi in the spleen exploded): lose one's temper <i>sheng qi</i> (generating qi): anger or getting angry <i>sheng men qi</i> (generating silent qi): be in a sulk <i>nu qi</i> (angry qi): anger, rage, or fury <i>ou qi</i> (be repressed with qi): sulk or repressed grievances <i>nu qi chong chong</i> (angry qi rushes out): huff and puff, be in a fit of spleen, in a great rage, or in a huff, or seethe with anger <i>qi fen tian ying</i> (the breast is filled with angry qi): be filled with indignation </p>
Anger as the feeling of physical changes in the visceral organs	
Anger as the agitation of qi inside the body	

Comparable terms in English can be found in **Table 4**.

Table 4. English embodied words and idioms describing bodily states or sensations of anger.

English Embodied Words and Idioms Describing Bodily States or Sensations of Anger	
Bodily States Controlled by the Autonomic Nervous System	
Anger as the output energy accumulated in the body as internal fluid heat and evaporation pressure	<p> <i>Heated, hot, slow burn, incensed, stew, blow up, fuming, inflame</i> e.g., Do not get <i>hot under the collar</i>. Billy's a <i>hothead</i>. They were having a <i>heated</i> argument. When the cop gave her a ticket, she got all <i>hot and bothered</i>. Do not get a <i>hernia</i>! When I found out, I almost <i>burst a blood vessel</i>. He almost had a <i>hemorrhage</i>. </p>
Anger as bodily injury or unpleasant bodily sensations	<p> <i>Cat fit, fit, rankling, inflamed, convulsed, exacerbated, nettled, chafed, sore or soreness, bitter</i> </p>
Anger as redness in face and neck area	<p> She was <i>scarlet</i> with rage. He got <i>red</i> with anger. He was <i>flushed</i> with anger. </p>
Anger as agitation	<p> She was <i>shaking</i> with anger. I was <i>hopping</i> mad. He was <i>quivering</i> with rage. He is all <i>worked up</i>. She is all <i>wrought up</i>. </p>
Anger as interference with accurate perception	<p> She was <i>blind</i> with rage. I was beginning to see <i>red</i>. I was so mad I <i>could not see straight</i>. </p>
Anger as breath or noise made by breath	<p> huff, huffy, hissy </p>
Bodily Sensations of Anger Governed by the Interoceptive System	
Anger as physiological sensation and changes in the visceral organs	<p> <i>Choler, gall, ill humor, choleric, galled, splenetic</i> </p>

As shown in **Table 4**, within the English-speaking North American culture, *anger* has been proposed to be metaphorically and metonymically conceptualized as output energy accumulated in the body as internal heat [5][6]. This may originate in a

Western cultural understanding of physics, in which '*emotional effects are understood as physical effects. Anger is understood as a form of energy*' ^[5] (p. 61). Thus, input energy accumulates within a body until it reaches a pressure point, at which the energy erupts as steam, externally radiating heat and agitation that may pose a danger to others.

However, within the same formulation, it is acknowledged that the 'lexical approach' toward mental structure (i.e., speculating about the mentalization of emotions via the words used in a particular language ^[5]) is likely to reflect more received 'folk theories' rather than the logic of scientific cognitive theories, particularly the updated modern affective neuroscience, even though Kövecses acknowledged those influential psychologists (e.g., ^{[7][8][9]}) by claiming that physiological reactions and bodily changes such as heat, internal pressure, redness of the face and neck area, and agitation are the essential components of angry emotion (and interfere with normal perception and reason ^[5]). Such theoretical logic is, however, somewhat obsolete and at odds with new evidence and emerging theories within affective neuroscience which highlight the fundamental, imperative role of interoception in emotional experiences.

The comparison of the embodied expressions of *anger* between Chinese and English (see **Table 3; Table 4**) demonstrates both similarities and differences in the two cultures. On the one hand, in each language, the facial expression, hair, teeth, eyes, and eyebrows, alongside physiological responses such as increased body temperature and redness of the face, are regarded as essential components of emotional experiences ^[5]. On the other hand, the Chinese and English languages differ in the following aspects: First, the way in which *anger* is typically conceptualized in English suggests a process that involves increasing temperatures within a *fluid* inside the body, leading to (implicitly through the evaporation) the build-up of pressure within the container (the body) and finally to the explosion of the container as a result of excessive pressure. *Anger* is construed more as the agitation of *qi* (in a gas or air state) in Chinese. This difference in the conceptualization of *anger* may be attributed to the distinct philosophical traditions of China and the West, in particular with regard to fundamental assumptions concerning the mind–body relationship ^[4].

More specifically, in traditional Chinese medicine and philosophy, everything in the universe is proposed to originate from the ever-changing and volatile primordial *qi*. In contrast, in early Western traditions, namely in the writings of Hippocrates, disease was associated with an imbalance or disturbance from the natural state of the body. In his *On the Nature of Man*, Hippocrates proposed the Theory of Four Humors, in which blood, phlegm, yellow bile, and black bile were the four elementary components of human bodies, and the imbalance or disproportion of the humors in the body may cause disease. Thus, a healthy state is conceived as the right balance in the intensity and quantity of the humors within the body. If one humor is insufficient or in excess, or if it is dispersed in the body and fails to mix with the others, disease will result ^[10]. Thus, in accordance with the theory of traditional Chinese medicine, the embodied words expressing *anger* that refer to the heart, liver, lungs, and other internal organs and to the flowing or circulation of *qi* between these internal organs are in compliance with the conception of mind–body relationships within Chinese philosophy ^{[4][11]}, while references to bile and the spleen in English can be traced back to the historical origin of Western medicine ^{[10][12]}.

3. The Embodied Conceptualization of Sadness or Grief in Chinese and English

A comparison of how *sadness* or *grief* is conceptualized in the Chinese and English languages showed the following: (1) There are far more words using tears and snot to express *grief* in Chinese than in English (merely with the more general word 'weep'). (2) *Sadness* and *grief* terms in Chinese draw reference to trauma to and pain in the internal organs (notably the heart, lungs, liver, intestine, blood, and even all five viscera), while embodied *grief* in English is typically constrained to the heart. (3) The expression of *sadness* in Chinese idioms uses many *sadness*-related behaviors including wailing, lamenting, thumping one's breast, and stamping one's feet, as well as lamenting to heaven and knocking one's head on the earth, but these are rarely mentioned in the English emotional language. (4) In Chinese, body parts associated with *sadness* or *grief* include the bone, bone marrow, skin, and eyes, while English lacks this specificity and granularity, using the general word 'hurt'. (5) As for gustation, bitter and sour are the flavors for *sadness* in Chinese, while only bitter is used in English. (6) In terms of temperature sensing (thalposis), there are numerous words connected with coldness or chilliness in Chinese to express *sadness*. In addition, compound emotions are frequently produced by cold and other emotions, such as *qi can* (miserable = cold + wretched), *qi liang* (bleak = cold + cool or desolate), *qi qie* (plaintive = cold + sad), *qi ku* (miserable = cold + bitter), *qi wang* (desolate = cold + disappointed), *qi shang* (melancholy = cold + hurt), *qi mi* (gloomy = chilling + sorrowful), *qi chuang* (wretched = chilling + mournful), and *bei liang* (desolate = sad + chilling). In contrast, in English, these feelings are expressed with discrete abstract words such as bleak, desolate, sorrowful, mournful, miserable, and so on and so forth (see also ^[4]).

In short, comparatively, Chinese people tend to conceptualize *sadness* via physical perceptions (including exteroception and interoception), in addition to emotional behaviors, actions, and facial expressions, while in English, the lexicalization

and conceptualization of *sadness* or *grief* is more impoverished, with a more limited range of words describing physical sensations, postures, and behavioral and facial expressions.

4. The Embodied Conceptualization of Joy or Happiness in Chinese and English

The comparison of the concept of *joy* or *happiness* between Chinese and English shows the following: (1) *Joy* is conceptualized as smiling, laughter, uncontrollable crazy behavior, celebration, excitement, and an energetic mental state in both languages. (2) Each language uses tactile sensations (e.g., itching) to describe *joy*. (3) Many Chinese idioms describing *joy* are underpinned by concepts of beaming, glowing, and radiance, such as *shen cai yi yi* (with shining and beaming spirit) (beaming), *guang cai zhao ren* (radiant with glamour and charm) (glamorous and charming), and *man mian chun feng* (the whole face in spring breeze) (overjoyed or beaming with joy). Likewise, in English, *joy* is conceptualized as glowing, radiance, and beaming of the face or body.

Nevertheless, there are variations in the conceptualization of *joy* between the two languages: (1) In Chinese, *joy* is mainly described with facial expressions (e.g., the stretching, lifting, and stirring of the eyebrows and eyes), postures and gestures (e.g., the shaking, stamping, and dancing of hands, feet, and the head) and bodily sensations including both somatosensation (e.g., itching) and interoception (e.g., *kai xin* (open heart) (joyful) or *xin hua nu fang* (flowers in the heart are in full bloom) (be elated or overjoyed)). Meanwhile, *joy* or *happiness* is less likely to be described with physical sensations in English, except for the itching and redness of the skin and the relaxation of the heart (e.g., heartening and lighthearted). (2) *Joy* is metaphorized as the abundance, fullness, freshness, smooth flowing, and stable state of *qi* inside the body in Chinese, while it is often conceptualized as lifting, flying, or floating of the body in the air in English.

In summation, the comparison of the four 'basic' emotions in Chinese and English indicates the following:

- Chinese uses more interoceptive words to describe emotions than in English. The Chinese emotion words with reference to the sensation and agitation of internal organs is not only abundant but systematic, likely due to the pervasive influence of traditional Chinese medicine and philosophy, whereas the adoption of interoceptive terms to describe emotions is not only far less common in English but also lacks granularity and systematicity (see also [4]).
- Under the influence of traditional Chinese medicine and philosophy, many Chinese emotion words are associated with *qi*, while in English, emotions such as *anger*, under the impact of the ancient theory of humors, are viewed as the changing energy of *fluids* inside the body and the increase in their temperature, vaporization, expansion, and explosion.
- Generally, 'coldness' or 'chill' is metaphorically projected to the concept of *sadness* in Chinese. This cold sensation, when combined with other feelings, generates more complex emotions such as bleakness, desolation, sorrowfulness, mournfulness, misery, and melancholy. In contrast, the sense of being chilled is more directly connected with *fear* in English.
- Incidentally, as pointed out elsewhere, there are far more emotion words and phrases using bodily sensory-motor systems such as facial expressions, bodily movements, and internal and external sensations in Chinese than in English, in which emotions are more likely to be conceptualized with nuanced abstract concepts [4].

In short, the interoception-centered embodiment of emotion concepts and their lexicalization in Chinese encapsulate the holistic body–mind–emotion relationship of traditional Chinese medicine and philosophy [4][11]. In contrast, a more dichotomous model of body–mind interaction underpins the assumptions of Western philosophy regarding the role of the body in emotion.

Therefore, what might be the impact of this divergence in embodied emotion concepts in Chinese and English on the everyday perception and experience of emotions? Moreover, do such linguistically diverse conceptual systems for emotions correspondingly shape or nurture distinct cultural values expressed by groups of Chinese and English language users as suggested by the Sapir–Whorf hypothesis and the theory of constructed emotion (e.g., [13][14][15])? Researchers propose a tentative hypothesis that the prominence given in Chinese to interoception (i.e., the cerebral sensory representation of inner bodily processes and the feeling states that are generated through this afferent body-to-brain route in the conceptualization of emotions) places bodily sensations underlying emotions in the foreground for the mind to receive, process and adapt to. In contrast, the prominence given in English to physical actions controlled by the autonomic nervous system and to reactive behaviors transmitted along the efferent brain-to-body pathway implies that bodily reactions are the principal expression of the embodiment of emotions and are subject to overarching control by the

brain (and mind). In this latter context, across Western culture, the brain is viewed as the 'master' or 'commander-in-chief' that plays a steering and directing role in emotion, while the body is reactive and subservient to the brain's wishes within the affective brain–body dynamics.

Arguably, the idiosyncratic embodiment of emotion concepts in the two geoculturally remote languages (i.e., Chinese and English) may be attributed to their distinctive conceptions of the body out of their distinct cultural or civilizational origins. In other words, the divergence in how the body is conceived can primarily explain the structural and systematic variation in the embodied conceptualization of emotions between English and Chinese (e.g., ^[13]).

References

1. Kipfer, B.A. Roget's 21st Century Thesaurus, 3rd (21st Century Reference) ed.; The Philip Lief Group, Inc.: New York, NY, USA, 2005.
2. Collins Dictionary.com. Available online: <https://www.collinsdictionary.com/us/dictionary/english-thesaurus/fear> (accessed on 26 June 2022).
3. Lex. Computing. 2003. Available online: <https://www.sketchengine.eu/skell/> (accessed on 24 June 2022).
4. Zhou, P.; Critchley, H.; Garfinkel, S.; Gao, Y. The conceptualization of emotions across cultures: A model based on interoceptive neuroscience. *Neurosci. Biobehav. Rev.* 2021, 125, 314–327.
5. Kövecses, Z. *Emotion Concepts*; Springer: New York, NY, USA, 1990.
6. Kövecses, Z. *Metaphor and Emotion: Language, Culture, and Body in Human Feeling*; Cambridge University Press: Cambridge, UK, 2000.
7. Ekman, P. An argument for basic emotions. *Cogn. Emo.* 1992, 6, 169–200.
8. James, W. What is an emotion? *Mind Lang.* 1884, 34, 188–205.
9. Schachter, S.; Singer, J. Cognitive, social, and physiological determinants of emotional state. *Psychol. Rev.* 1962, 69, 379.
10. Lindberg, D.C. *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, Prehistory to A.D. 1450*, 2nd ed.; University of Chicago Press: Chicago, IL, USA, 2007.
11. Maciocia, G. *The Foundations of Chinese Medicine: A Comprehensive Text*; Elsevier Health Sciences: New York, NY, USA, 2015.
12. Sigerist, H.E. *Man and Medicine. An Introduction to Medical Knowledge*; George Allen & Unwin Ltd.: London, UK, 1932.
13. Perlovsky, L. Language and emotions: Emotional Sapir–Whorf hypothesis. *Neural Netw.* 2009, 22, 518–526.
14. Barrett, L.F. *How Emotions are Made: The Secret Life of the Brain*; Houghton Mifflin Harcourt: New York, NY, USA, 2017.
15. Lindquist, K.; Gendron, M.; Satpute, A.; Barrett, L.; Lewis, M.; Haviland-Jones, J. Language and emotion: Putting words into feelings and feelings into words. In *Handbook of Emotions*, 4th ed.; Barrett, L.F., Lewis, M., Haviland-Jones, J.M., Eds.; The Guilford Press: New York, NY, USA; London, UK, 2016; pp. 579–594.

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