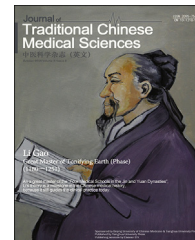




Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.elsevier.com/locate/jtcms>



The effect of anger on pulse-graph parameters in healthy college students: A pilot study

Daoning Zhang^a, Yan Zhao^a, Changchun Zeng^b,
Wanhong Chen^a, Tianfang Wang^{a,*}

^a Department of Diagnostics of TCM, School of Basic Medical Sciences, Beijing University of Chinese Medicine, Chaoyang District, Beijing 100029, China

^b School of Basic Medical Sciences, Guilin Medical University, Guangxi, Guilin 541004, China

Received 30 April 2016; accepted 30 July 2016

Available online 23 January 2017

KEYWORDS

Anger;
Pulse-graph
parameter;
Emotional elicitation

Abstract *Objective:* To explore the effect of anger on pulse parameters in healthy participants.

Methods: Thirty healthy college students from Beijing University of Chinese Medicine were selected as volunteers. Each participant was asked to watch an anger-inducing film clip. Their discrete emotional dimensions were assessed by a self-report at three time points: 10 minutes before watching the video (T1), the moment when the video ended (T2) and 15 minutes after the video ended (T3). Meanwhile, pulse-graph parameters (pulse tense, pulse force, pulse fluency, pulse rate and pulse rhythmicity) were recorded by a pulse apparatus at the same three time points.

Results: The target emotion of anger was successfully elicited, and the participants also reported slight sadness and fear. After emotional elicitation, the participants showed significant changes in pulse tense, pulse force, pulse fluency and pulse rate. There was no significant change in pulse rhythm.

© 2017 Beijing University of Chinese Medicine. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

The pulse condition, usually palpated by a traditional Chinese medicine (TCM) practitioner by placement of fingers on a patient's radial artery, conveys information on

* Corresponding author.

E-mail address: tianfangwang2000@163.com (T. Wang).

Peer review under responsibility of Beijing University of Chinese Medicine.

physiological and pathological conditions. Therefore, the pulse examination is an indispensable diagnostic method in TCM to diagnose the causes, the locations and the nature of disease, as well as potential cures.

The *cun kou* pulse diagnostic method is most commonly applied. The *cun kou* is located at the radial artery, and is divided into three portions, *cun*, *guan*, and *chi*.¹ The styloid process of the radius bone marks the *guan* position. Between the *guan* and the wrist joint is *cun* position.

In TCM, the heart governs blood circulation and the vessels (including the pulse), while the vessels (including pulse) house the blood. Thus, the condition of the pulse reflects the condition of the heart and blood. Essentially, regular beating of the heart circulates blood in the vessels, effecting the vessels' ability to produce rhythmic beating, which leads to a pulse. Modern medical research supports the above-mentioned theory, revealing that the pulse condition conveys cardiovascular information.² Changes in the heart or its vessels can disrupt the pumping function of heart, leading to changes in both the structure and function of blood vessels, which in turn can be reflected in pulse morphology.

Anger is a negative emotion triggered by frustration, thoughts of blame, or interpersonal provocation.³ Anger produces a powerful physiological state of arousal with an increase in cardiac output and peripheral vasoconstriction.⁴ In TCM, the pulse varies in accordance with anger stimuli. Indeed, anger usually leads to a rapid surge in blood flow, therefore, the most common pulse condition is the wiry (taut) pulse.

Reading of the pulse depends on the subjective sensing of the practitioner's fingers. Indeed, the traditional method of reporting pulse condition is more qualitative than quantitative. For instance, the wiry pulse is like pressing the tight string of a musical instrument. Furthermore, the magnitude of a pulse quality is not precisely defined. For example, a pulse may be described as "slightly" stronger than another, however "slightly" is not an accurate description of the subtle differences. These two factors have resulted in a lack of objective standardization of pulse descriptions. With advances in sensor technology, however, pulse apparatuses have been developed to collect computerized pulse waveforms and present pulse conditions in the form of physical parameters.

Pulse apparatuses have been utilized to explore the relationship between the emotions and the pulse. Such studies have mainly focused on the association between mental disorders and pulse condition. For example, Xie⁵ used the ZM-m apparatus to measure pulse parameters in female college students with depression. Results showed that variations in pulse-graph parameters can be used as an objective basis for TCM syndrome pattern differentiation in depression.⁵ Since it is essential to understand healthy physiologic functioning before being able to comprehend abnormalities during pathologic states, investigators are addressing whether there are differences in pulse parameters elicited by temporary emotional states versus more chronic emotional diseases.^{6,7} However, no published studies have specifically examined the interplay between anger and physiologic changes in pulse parameters in healthy people. Therefore, if the pulse is in fact a reflection

of a person's emotional state, we hypothesize that using a pulse apparatus can identify the specific emotion.

Some theories have argued that all emotions are based on a state of non-specific arousal, others, however, have stated that individual emotions have specific physiological response patterns.⁸ On the one hand, it has been difficult to demonstrate a clear relationship between specific physiological processes and specific emotions.² On the other hand, there is indeed a specific physiological association between pulse condition and various emotions.

Emotion-eliciting film clips are a common technique for inducing temporary emotions in a laboratory setting.^{8,9} Compared with other methods, exposure to emotional film excerpts has these advantages: they can elicit strong subjective and physiologic changes; the emotions conveyed by film scenes mimic emotional experiences in daily life, therefore, studies using film excerpts have a high degree of ecologic validity without any ethical problems.¹⁰ The emotions conveyed by film scenes mimic the emotional experience in daily life, therefore, it is of high degree of ecological validity without any ethical problems, which will cause emotional disease.¹⁰

Emotion is an independent variable in studies based on the assumption that affective responses can be elicited and measured reliably. Usually, in the elicitation procedures, we use self-report inventory to rate participants' emotional scores.¹⁰

The goal of our study was to explore the effect of temporary anger on pulse-graph parameters in healthy college students. We chose anger because compared with other emotions, it elicits the strongest cardiovascular arousal,¹¹ which we hypothesized would lead to large changes in pulse-graph readings. We asked participants to view an emotional film clip capable of inducing anger. At the same time, we used For-Diagnoses Auxiliary Apparatus (BD-SZ) to detect participants' pulse. By comparing and analyzing the changes in pulse-graph parameters at three different time points, an objective description of pulse condition in TCM terms was obtained.

Methods and materials

Participants

In order to choose healthy participants, we used physical examination reports and psychological questionnaires to recruit participants by telephone screening.

Forty healthy freshmen majoring in acupuncture enrolled at Beijing University of Chinese Medicine were initially recruited. None had a history of mental disorders, psychotropic medication treatment, or drug use. To ensure the internal validity of the results, exclusion criteria were specified to direct participant selection. Exclusion criteria were persons who experienced a negative life event within 2 weeks prior to the experiment, or those who were already familiar with the anger-inducing film clip. Since *cun kou* is the main position for pulse detection in TCM, and also is the only anatomical region appropriate for electro-pulse-graph detection, we also excluded persons with physiologic variations or skin damage in

Download English Version:

<https://daneshyari.com/en/article/8339943>

Download Persian Version:

<https://daneshyari.com/article/8339943>

[Daneshyari.com](https://daneshyari.com)