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Is Heart Rate Variability (HRV) Associated with Emotional Response to External Stimulation?

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This paper will demonstrate the relationship between emotion and heart rate variability (HRV).

Emotions play a vital role in facilitating human responses to challenges, maintaining social order, regulating social distance toward or away from others, and influencing the behavior of others. Emotions are of dynamic nature and vary among individuals. An objective method of emotion recognition can help people to realize situations and behaviors that may affecttheir physical and mental health.

Measurement of HRV, also known as the beat-to-beat variations of heart rate, has been proposed as a potential method for assessing autonomic nervous activity during different emotional responses. The focus of this paper, therefore is to strengthen this claim by exploring the change of HRV during different emotions elicitation.

Two-group pretest-posttest design was used. Images from the Open Affective Standardized Image Set (OASIS) were selected for the positive and negative video. Subjects were randomly assigned to a positive or negative video groups. They were evaluated by the Chinese version of Positive and Negative Affect Schedule (PANAS) and Chinese State-Trait Anxiety Inventory (C-STAI). Subjects were required to rate the valence and arousal of each image presented in the emotion-eliciting video clip. HRV was assessed by a continuous recording of electrocardiogram. HRV parameters were extracted for analysis.

The results indicated that HRV is associated with emotional response to external stimulations. The significant increase of low frequency in normalized unit (LF n.u.) and the significant decrease of high frequency in normalized unit (HF n.u.) during watching negative emotion-elicitation video clips, supported the use of HRV as an objective method to predict emotional response and promote emotion regulation.

Biography:

Ms. Peggy Chow is a registered nurse. She has graduated with her BSc and MSC from School of Nursing, The Hong Kong Polytechnic University. She has worked in HA hospitals for more than 15 years, mainly served in paediatric intensive care unit. She has completed her training in paediatric intensive care nursing in IANS. Ms. Chow joined the School of Nursing, Tung Wah College as a Senior Lecturer in Jan 2011. She is currently studying for her Doctoral Degree at The Hong Kong Polytechnic University.