



Anger, anger expression, cardiovascular risk factors, and gastrointestinal symptoms by hwa-byung symptoms in Korean adult women



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ABSTRACT

Purpose: This study explored relationships of anger and anger expression to cardiovascular (CV) risk factors and gastrointestinal (GI) symptoms in Korean women based on hwa-byung (HB) symptoms.

Methods: A descriptive, comparative design was used. One-hundred four women who are from 20 to 65 years old were recruited. Based on the HB score, 22 women indicated for HB and the rest were classified as normal. Data collection was done with several questionnaires including HB symptom scale, state-trait anger expression inventory, and GI symptom questionnaire and clinical information.

Results: Women with HB demonstrated significantly higher levels of trait anger and dysfunctional anger expression such as anger suppression and anger expression than normal group. Although blood pressure was higher in women with HB, the differences were not significant. Self-report of GI symptoms were significantly more in women with HB, however no significant difference was found in gastroscopy results.

Conclusions: Women with HB were younger and might lack of sufficient social support. This study suggests relationship of anger and anger expression to functional GI symptoms. Characteristics of women with HB should be considered in developing intervention programs for healthy coping. Future studies need more women with HB for better comparison.

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1. Introduction

All social groups have their own health beliefs and behaviors as a shared culture as they have the shared culture in religion, marriage, and other areas of life. When difficult symptoms that are embedded in the culture of health and illness shared by one social group, are not perceived by modern and universal biomedical health system, it is called folk illness or culture-bound syndrome (CBS). Although differences between folk illness and CBS may not appear clear, major difference is present in their concepts. Folk illness emphasizes its biocultural and social explanation while CBS critically emphasizes universal psychogenic symptomatology (Baer, Clark, & Peterson, 1998). That is, understanding the complexity of CBS as expression of distress from socially learned response make the integration between cultural and clinical knowledge and provide insights into problems of diagnostic universality and

cultural specificity (Guarnaccia & Rogler, 1999). In regard to this matter, systematic and sustained research on *hwa-byung* (HB), which is known as a representative Korean CBS, is important in promoting our understanding of the CBS and its clinical significance.

Hwa-byung was introduced in the fourth version of *Diagnostic and Statistical Manual of Mental Disorder Fourth Edition (DSM-IV)* as an anger syndrome, which literally means “anger disorder” or “fire disease”. “*Hwa*” means anger and fire as well and “*byung*” means disease or disorder. According to an epidemiological study of a rural area in Korea, incidence of HB was 4.1% of the general population (Min, Namkoong, & Han, 1990). Characteristics of HB seem to be psychological in nature, including subjective pent-up anger (*hwa*) and a feeling of *uk-wool/boon* (a feeling of unfairness), however, it also has somatic symptoms of a heat sensation and others such as respiratory stuffiness, sighing, something pushing-up in the chest, or a mass in the epigastric area that symbolize the expression or suppression of anger-fire (Min, 2008).

The first study on HB was performed in Lee (1977), Si-Hyung, one of the well-known Korean psychiatrists. Since then, HB studies have been continued to better understand its concept, prevalence, symptoms, and causes and to develop diagnostic criteria and treatment in the areas of medicine, oriental medicine, psychology, nursing, and cultural anthropology. However, task of reaching an agreement on substance of HB still remains. For example, there is a gap in understanding between

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Western medicine and oriental medicine to the concept of HB. That is, in the Western medicine that regards HB as an illness focusing on clinical interpretation, HB tends to be conceptualized as unique symptoms in the context of Korean culture. In contrast, in the approach of oriental medicine, HB is conceptualized as symptoms that occur in different cultures since it focuses on the concept of *hwa* (fire).

Nevertheless the gap in conceptual understanding about substance of HB, Min (2004) suggested HB, a unique Korean cultural disorder, to be a formal and international medical diagnosis as an anger disorder. As a rationale, Min (2004) contends HB as a combination of depression and somatization disorder or a combination of depression, somatization disorder, and anxiety disorder. Furthermore, there is no matching diagnosis in the first axis disorder of previous *DSM-IV* or *ICD-10* disorder. Above all, patients complaining of solely anger emotion and related physical symptoms are observed in Korean culture. If those Koreans who have anger emotion and related physical symptoms are properly treated under the formal and medical diagnosis, not only HB but also depression, somatization disorder, and HB related illness can be prevented. Thus, having a formal diagnosis for HB is clinically important.

In this context, future HB research aims at better understanding of substance of HB. Kim (2004) mentioned that future studies on HB are to clarify the substance of HB and to promote understanding of relationship of HB to other illness, interpretation of HB as CBS, and Korean illness related characteristics. Chon, Park, and Kim (1998) pointed out that HB studies in the past that have been conducted by mostly psychiatrist, overly emphasized psychopathological aspect of HB while pathophysiological aspect has been relatively overlooked. They also suggested in the methodological aspect of HB studies that more studies using reliable and valid instruments are needed to confirm diagnostic universality for comparison with international studies.

Anger and depression, the major psychological symptoms of HB have been identified as very important psychological factors in cardiovascular (CV) disease and cancer (American Heart Association, 2007). High levels of somatization, anger, fatigue, and frustration were reported in patients with irritable bowel syndrome (Choi et al., 2006). Patients with physical illness such as coronary artery disease (CAD), gastrointestinal (GI) diseases, skin disorders, or diabetes mellitus (DM) were found to have stress symptoms, negative perception about themselves, problematic interpersonal relationship, or high level of anger (Batigun, Sahin, & Demirel, 2011). Also, there was a report that anger emotion was related to GI motility and anger suppression may facilitate abnormal physical function including GI function by causing activation of autonomic nervous system (Bennett et al., 1992). Growing evidence supports the hypothesis that negative affects such as anxiety, anger and depression play a key role in dysregulation of the brain–gut axis, contributing to the majority of pathophysiological and symptomatic correlates of irritable bowel syndrome (Muscatello, Bruno, Scimeca, Pandolfo, & Zoccali, 2014).

Recently, studies on pathophysiological aspect of HB are still few. One study (Park et al., 2011) that investigated relationship of HB to CV risk factors found significant relationships of HB symptoms to abdominal obesity and probability of having a CV event such as myocardial infarction. Another study that regards HB as anger syndrome and is based on the evidence of neural substrate of anger, suggested dysfunction of anterior cingulate cortex that was observed in psychiatric disorders such as depression, post-traumatic stress disorder, schizophrenia, and compulsive disorder, was similarly found in people with HB when compared with ones without HB (Lee et al., 2009).

Thus, purpose of this study was to: (a) investigate the characteristics of Korean women with HB symptoms; (b) explore their anger and pattern of anger expression based on the level of HB symptoms by using standardized anger scale; (c) explore the association of pathophysiological aspect of HB with CV risk factors and GI symptoms based on the level of HB symptoms. In summary, this study aims to offer fundamental data in order to contribute to better understanding of substance of HB and to develop better management and care of HB.

2. Method

2.1. Design

A descriptive and comparative design was used to describe characteristics of study participants and to compare anger and pattern of anger expression, CV risk factors, and GI symptoms between two groups of women based on the level of HB symptom. One is called potential HB group and the other is named normal group.

2.2. Sample

One hundred four adult women were recruited and divided into two different groups, HB group and normal group. According to the dividing score as referred to Park, Kim, Kang, and Kim (2001), women whose scores 41 and higher were defined as HB group while women whose score under 41 fell into the normal group. Sample size was estimated by using G*Power 3.1.5. Effect size of this study was referred to the study finding (Park et al., 2011) which used average 10-year estimate of CV disease risk ratio (normal group: 3.97 ± 2.98 ; potential HB group: 6.43 ± 4.80). With effect size of .62, significance level (α) at .05, power ($1 - \beta$) of .80, estimated sample size was 34 each group, total 68.

2.3. Instrument

2.3.1. General background information

Characteristics of participants include sociodemographic and illness- and health- related information. Sociodemographic information about age, socioeconomic status, education, marital status, and job were collected. Illness related information include menopause and history of present illness while health related information include smoking, sleep, exercise, drinking and subjective health status.

2.3.2. Hwa-byung symptoms

Hwa-byung symptoms are measured by HB symptom scale developed by Park et al. (2001). This scale of 31 items consists of two items of unsatisfied marriage life, nine items of depressive symptoms, thirteen items of negative view about life, four items of heat sensation, and three items of physical symptoms. Response format ranges from 0, indicating “never” to 3, indicating “so true” on the severity of symptoms. Total score ranges from 0 to 63 indicating higher the score, worse the symptom. According to Park et al. (2001), scores under 41 were regarded as normal while 41 and above were considered to have HB. This tool was reported internally consistent in a previous study (Park, Kim, Cho, & Moon, 2004) with Cronbach's α of .80 and .94 in this study.

2.3.3. Anger and anger expression

Anger and anger expression were measured by state-trait anger expression inventory–Korean version (STAXI-K) that was standardized by Chon, Hahn, Lee, and Spielberger (1997). Response of both trait anger and anger expression ranges from 0 indicating “almost never” to 3 indicating “almost always.” This study omitted state anger on purpose because trait anger that means frequency of anger on usual or emotional status of being angry was appropriate for the purpose of this study. Scores of 10 items of trait anger range from 0 to 30 indicating the higher the score, the higher the trait anger. Anger expression is measured by three dimensions of the STAXI-K, introverted anger, extroverted anger, and anger control in this study. Eight items of introverted anger, called anger-in (AI) means frequency which one tolerates or suppresses the anger emotion, and another dimension with eight items of extroverted anger, called anger-out (AO) means how often one expresses one's anger to surrounding persons or objects. The other eight items of anger-control (AC) means frequency of trying to control one's anger expression. Thus, the anger expression scores with total 24 items range from 0 to 24 on each dimension which indicate that the higher the score, the greater

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