



Review Article

Personalized acupuncture treatment with Sasang typology

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ABSTRACT

The Sasang typology, traditional Korean personalized medicine, divides people into four Sasang types and suggests type-specific medical herbs and acupuncture for more safe and effective treatment. The main idea of Sasang typology seems relatively simple; however, the Sasang type diagnosis and type-specific treatment in clinical situation has been difficult for the clinicians and researchers. This study provided clinical procedures of type-specific Tae-Geuk Acupuncture (TGA) therapy along with basic understandings on Sasang typology and clinical indices for Sasang type differentiation. The TGA therapy would be useful for psychosomatic complaints and chronic pains by restoring the balance of Yin–Yang. The clinical application of TGA, its related biological mechanisms, and implications for further prospective clinical study were discussed.

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1. Introduction

The personalized medicine for effective and safe treatment has long been of interest since Hippocrates and Galen of the West and Yellow Emperor and Ayurveda of the East and was encouraged with the recent Human Genome Project.^{1–3} The Sasang typology is a traditional Korean personalized medicine systematically theorized by Jema Lee (1837–1900) and his book *Longevity and Life Preservation in Eastern Medicine* (1894, 1900)

based on Confucius understandings on human nature and thousands years of clinical experiences in Korea.^{2–5}

The Sasang typology divides people into four Sasang types, *Tae-Yang*, *So-Yang*, *Tae-Eum*, and *So-Eum*, with type-specific psychobiological traits^{2,6} and pathophysiological symptoms.^{7,8} The Sasang type-specific treatments with medical herbs⁹ and acupuncture could be applied considering one's Sasang type

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Table 1 – General characteristics of Sasang typology in temperament, physical shape, pathophysiological symptoms and type-specific treatment.

Sasang type (prevalence)	Tae-Yang (太陽) (<0.1%)	So-Yang (少陽) (30%)	Tae-Eum (太陰) (40%)	So-Eum (少陰) (30%)
Origin of the nature	Sorrow (哀) by benevolence (仁) They feel sad when they realize their self-transcendent idea is obstructed.	Anger (怒) by righteousness (義) They become angry when they are blocked. The anger can be regulated by fairness.	Gladness (喜) by courtesy (禮) Social approval can be obtained with courtesy. They are glad when they get what they want.	Enjoyment (樂) by wisdom (智) Worries can be relieved with wisdom. They enjoy what they have now.
Pathophysiological characteristic	Large Pae (lung) system, small Gan (liver) system (肺大肝小) Strong sympathetic activation, weak anabolism and energy-storing Low threshold in sympathetic activation.	Large Be (spleen) system, small Shin (kidney) system (脾大腎小) Strong intake and digestion, weak with waste discharge. In the middle of Tae-Eum and So-Eum as for the autonomic reactivity. In the middle of Tae-Eum and So-Eum as for the SDFI.	Large Gan (liver) system, small Pae (lung) system (肝大肺小) Strong anabolism and energy-storing, weak sympathetic activation Low threshold in parasympathetic activation. High SDFI and low FDQOL. High insulin resistance, high Triglyceride, cholesterol concentration, and blood pressure	Large Shin (kidney) system, small Be (spleen) system (腎大脾小) Strong with waste discharge, weak intake and digestion Low threshold in sympathetic activation. Low SDFI and high FDQOL. Low immune function
Personality or temperament	Masculine, move forward, originative High SPQ	Active, externally oriented, talented for business. High SPQ High Novelty-Seeking and low Harm-Avoidance (TCI). High Extraversion (NEO-PI).	Still, withdrawn, conservative In the middle of So-Yang and So-Eum as for the SPQ, Novelty-Seeking, Harm-Avoidance and Extraversion Low in Trait Anxiety (STAI).	Feminine, internally oriented, self-centered. Low SPQ. Low Extraversion. Low Novelty-Seeking and high Harm-Avoidance. High in Trait Anxiety.
Body shape or constitution	Similar to the So-Eum type	Short and little Similar to the So-Eum type, but more muscular than So-Eum type	Tall and big (not fat or obese) High PI, BMR, BMI, body fat mass, bone density and Waist-hip ratio. High width-height ratio of face. Bigger neck and chest circumference	Short and little Low PI, BMI and Waist-hip ratio. Low width-height ratio of face. Smaller neck and chest circumference
Concerns for the good health	Enough urination Avoid dehydration and overexertion of mental and bodily resources	Easy with defecation Avoid over-activation and overloads of bodily functions	Enough perspiration Maintain adequate level of catabolic, sympathetic and circulatory system	Good digestion Maintain healthy digestive function, peristalsis, and body heat
Frequent symptoms or disease	Emesis, nervousness/neurasthenia, sudden weakness in lower extremities	Constipation, gastroesophageal (laryngopharyngeal) reflux disease, affective disorder, insomnia, heat on chest	No perspiration, diabetes, metabolic syndrome, hypertension, stroke, obesity, obstructive sleep apnea, irritable bowel syndrome	Indigestion or dyspepsia, upper respiratory infection, neurotic symptoms
Type-specific medical herbs	<i>Chaenomeles Fructus</i> , <i>Acanthopanax Cortex</i> , <i>Phragmites Rhizoma</i>	<i>Rehmanniae Radix</i> , <i>Corni Fructus</i> , <i>Hoeoen</i> , <i>Alismatis Rhizoma</i> , <i>Osterici Radix</i> , <i>Angelicae Pubescentis Radix</i>	<i>Ephedrae Herba</i> , <i>Liriopsis Tuber</i> , <i>Schisandrae Fructus</i> , <i>Dioscoreae Rhizoma</i> , <i>Platycodi Radix</i> , <i>Coicis Semen</i> , <i>Puerariae Radix</i>	<i>Ginseng Radix</i> , <i>Atractylodis Rhizoma Alba</i> , <i>Glycyrrhizae Radix</i> , <i>Cinnamomi Cortex</i> , <i>Citri Pericarpium</i> , <i>Zingiberis Rhizoma Crudus</i>
Type-specific acupuncture points	HT8(+), LR3(+) and LU9(-)	HT3(+), KI3(+) and SP3(-)	HT4(+), LU9(+) and LR3(-)	HT7(+), SP3(+) and LI4(-)

BMI, body mass index; FDQOL, functional dyspepsia-related quality of life; NEO-PI, NEO Personality Inventory; PANAS, Positive and Negative Affect Schedule; PI, Ponderal Index; SDFI, Sasang Digestive Function Inventory; SPQ, Sasang Personality Questionnaire; STAI, State and Trait Anxiety Inventory; TCI, Temperament and Character Inventory.

in combination with cold-hot subgroup and severity of the illness (Table 1).

Although the Sasang typology showed its clinical usefulness^{10–17} and seems relatively simple, the clinical

application of Sasang type-specific treatment has not been easy even with many articles and books on it. In many cases, clinicians have failed to incorporate it from the misunderstandings on theories and limited understanding on

diagnosis, thereby making the clinical usefulness of Sasang typology suspicious. Therefore, evidence-based and detailed explanations on the diagnosis and treatment of a patient with Sasang typology are needed for the interested clinicians. In this review, we systematically describe the clinical application of Sasang typology from the Sasang type differentiation with type-specific pathophysiological symptoms^{7,8} to the Tae-Geuk (Tai-Chi in English) Acupuncture (TGA) with type-specific acupuncture points.^{8,18}

TGA was originally suggested by Dr Byunhaeng Lee with reference to the Sasang typology and clinical experiences in 1974,¹⁹ and Dr Jaekyu Kim introduced the clinical examination technique of Insang Park and Jungjae Kim²⁰ and reported its clinical efficacy previously.^{18,21}

Jema Lee wrote his experience with type-specific acupuncture treatment in his book as “Previously, I have met So-Eum Sasang type patient suffering from digestive system qi problems and was successfully treated with acupuncture on LI4. And I also experienced immediate effects of acupuncture treatment that the medications couldn’t get. Since there would be acupuncture technique useful for the Sasang typology, the Sasang type-specific points and manipulation technique should be improvised to control the Sasang type-specific pathophysiological mechanisms.”⁴

Though TGA was not suggested in Jema Lee’s original book, it was systematized by the clinical specialist of acupuncture, and its clinical efficacy on chronic pains in multiple sites and psychosomatic complaints were supported with retrospective studies.^{18,20–22} TGA was reported to be useful for instant confirmation of Sasang type differentiation with simple test; however, it was out of reach for the foreign clinicians until now

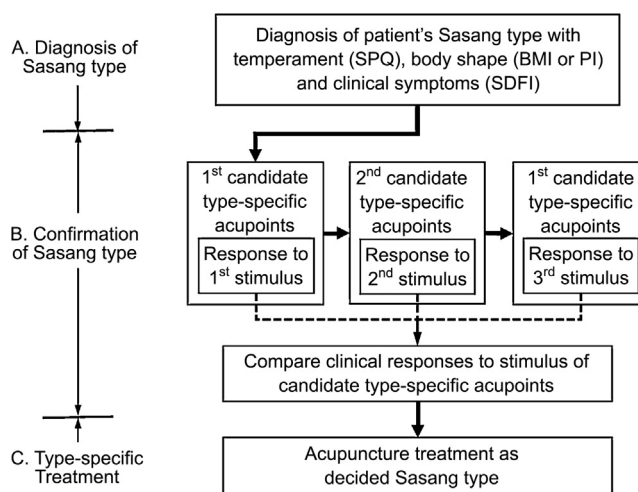


Fig. 1 – Schematic flow for Sasang type diagnosis and treatment with type-specific acupoints. BMI, body mass index; PI, Ponderal index; SDFI, Sasang Digestive Functional Inventory; SPQ, Sasang Personality Questionnaire.

since up-to-date reports on Sasang type differentiation^{2,6–8,23} have not been supplemented with detailed clinical procedures of TGA.

This study would provide clinical procedures of acupuncture treatment with Sasang typology (Fig. 1) along with general features of each Sasang type for diagnosis (Table 1; Fig. 2), Sasang type-specific acupuncture points (Table 1), and

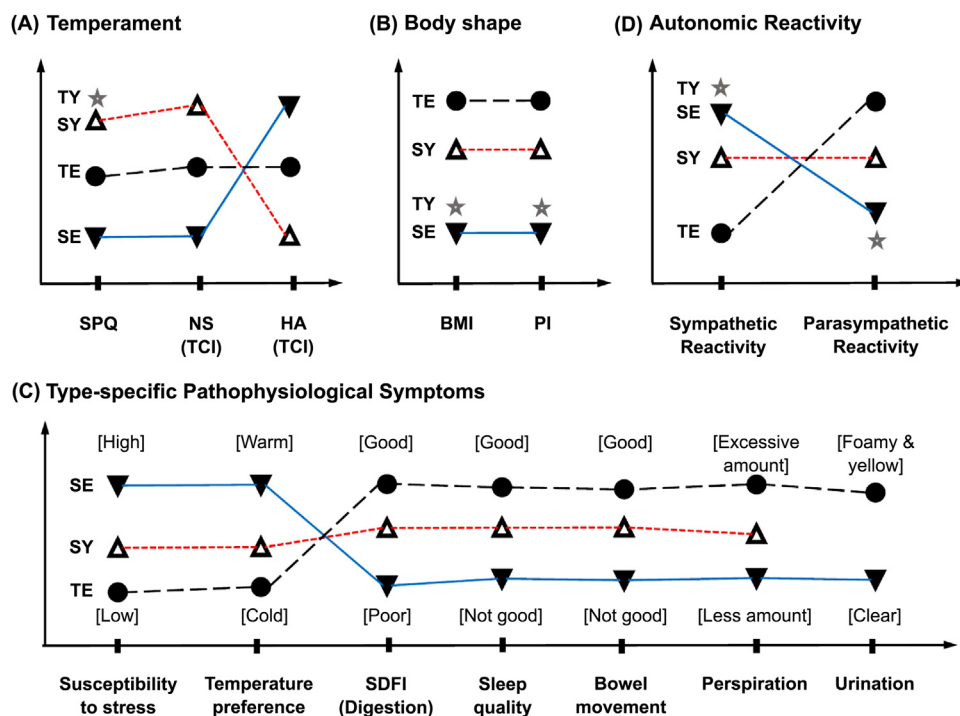


Fig. 2 – Profiling of each Sasang type with type-specific clinical measures. BMI, body mass index; HA, harm avoidance; NS, novelty seeking; PI, Ponderal index; SDFI, Sasang Digestive Functional Inventory; SE, So-Eum; SPQ, Sasang Personality Questionnaire; SY, So-Yang; TCI, Temperament and Character Inventory; TE, Tae-Eum; TY, Tae-Yang.

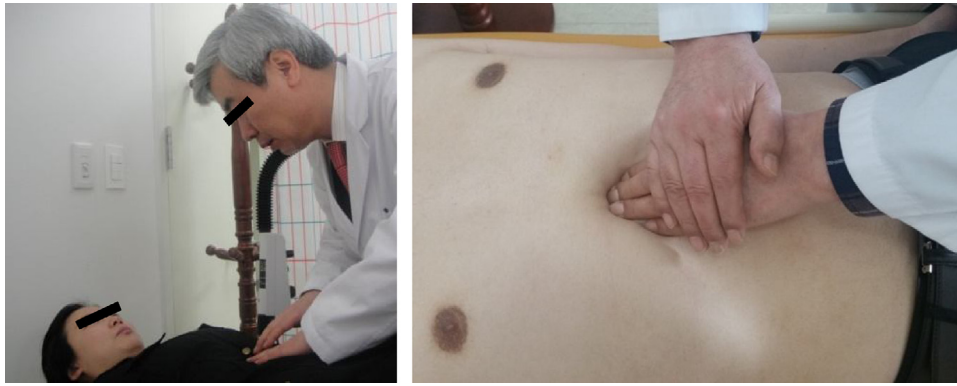


Fig. 3 – Examination of epigastric region tenderness.

The epigastric region tenderness is examined by pressing with two hands for testing whether correct type-specific point stimulus is applied. If the right Sasang type-specific stimulus is applied, then the rebound pressure on this region is significantly decreased.

methods for examining clinical response to TGA (Fig. 3). It would provide a gateway for Sasang type-specific acupuncture treatment and more structured clinical research on its effectiveness.²⁴

2. Characteristic features of the Sasang typology

Literally, every Korean has heard about the Sasang typology; however, understanding its theories has been a challenge even for Korean doctors. There are several characteristic features of Sasang typology to be acknowledged for better understandings on Sasang typology, including the fact that the philosophical theories of Sasang typology is based on Confucianism and four clues (benevolence, righteousness, courtesy, and wisdom) and that of East-Asian medicine is Taoism and five phase.^{3,4}

The Sasang typology is a reformation and restructure of medical theories and clinical experiences of East-Asian medicine; it uses same medical herbs and acupuncture of East-Asian medicine depending on one's innate pathophysiological predispositions rather than their momentary clinical manifestations in prognosis.^{3,4} Jema Lee stated that the glimpse of Sasang typology was shown in chapter 72 of *Miraculous Pivot* (靈樞) of the *Canon of Internal Medicine* (Huangdi Neijing, circa 300 BC), and parts of clinical application of Sasang typology were provided in the *Treaties on Cold Damage and Miscellaneous Diseases* (Shanghanzhubinglun by Zhongjing Zhang, circa 3c).⁴

However, since the Sasang typology has unique four-internal organ system based on thousands years of East-Asian clinical experiences, up-to-date medical theories, and personality studies of Confucianism, the medical terminology of Sasang typology has a different meaning compared to that of East-Asian traditional medicine; furthermore, Korean pronunciation of medical terms would be appropriate to avoid confusions with basic words including names of each Sasang type and internal organs.³

The term *Tae-Eum* type (太陰人) refers to a specific group of a person having courtesy and gladness as the origin of

their nature and weak sympathetic and strong parasympathetic activation (Table 1), not someone with characteristic symptoms of Large Yin from the Three Yin and Three Yin as described in *Canon of Internal Medicine* and *Treaties on Cold Injury*.

As for pathophysiological mechanisms, the Sasang typology suggests the innate hyper- and hypo-activity of four internal organs, such as *Pae* (lung), *Be* (spleen), *Gan* (liver), and *Shin* (kidney),^{2,3} not the imbalance of five internal organs in *Canon of Internal Medicine*. The *Shim* (heart) is regarded as a concealed governor of psychobiosocial features following the tradition of the book *Mencius* (circa 300 BC) and *Correcting the Errors in Medical Field* (1830), not a member of five viscera in *Canon of Internal Medicine*.^{3,4}

Jema Lee noted on four-internal organ system in his book as “Four internal organs of *Pae* (Lung), *Be* (Spleen), *Gan* (Liver), and *Shin* (Kidney) are the pivotal ones for character development, and the *Shim* (Heart) is the governing center of these. The matured expression of biopsychosocial traits of a person might be achieved by developing four social nature of benevolence, righteousness, courtesy, and wisdom located in four organs. If you carefully examine the four poorly developed natures of rude, flippant, greedy, and lazy characters, you would get to know how to accomplish matured character.”⁴

In addition to the four-internal organ system, the Sasang typology also has unique pathophysiology emphasizing the balance of Yin–Yang (e.g., balance of two internal organs in pair as for qi/fluid and food). *Pae* and *Gan* (lung and liver or P-G domain) control the usage or storage of qi and body fluid, and the *Be* and *Shin* (spleen and kidney or B-S domain) regulate the digestion of grains and water or discharge of its waste (Table 1).

The *Tae-Yang* type has hyper-activated *Pae* (lung) with activated usage of qi and body fluid and hypo-activated *Gan* (liver) with suppressed storage of qi and body fluid; however, the *Tae-Eum* type has hyper-activated *Gan* (liver) with activated storage of qi and body fluid and hypo-activated *Pae* (lung) with suppressed usage of qi and body fluid. The *So-Yang* type has hyper-activated *Be* (spleen) with good digestion of grains and water and hypo-activated *Shin* (kidney) with poorly controlled discharge of the waste; however, the *So-Eum* type has hyper-activated *Shin* (kidney) with well-controlled discharge of the

waste and hypo-activated *Be* (spleen) with poor digestion of grains and water.^{3,4}

As for the clinical application, although four Sasang type groups are categorically classified, those can be discriminated with a combination of continuous clinical variables, including temperament measures, body shape of Ponderal index (PI), and body mass index (BMI), and twelve clinical indices (Table 1; Fig. 2).^{25,26} The clinical diagnosis of Sasang types is similar to the pattern identification or profile analysis of other East-Asian traditional medicine,²² and the demographic characteristics of sex, jobs, culture, and ethnicity might influence the prevalence of each Sasang type.²⁷⁻²⁹

Since the Sasang typology has these similarities and disparities with traditional East-Asian medicine, TGA incorporates meridians and acupuncture points of traditional East-Asian medicine and suppress and support method for controlling the innate imbalances of four-internal organ system of Sasang typology. Now, we would discuss the procedures of TGA along with Sasang type differentiation with clinical measures.

3. Sasang type differentiation and type-specific acupuncture treatment

The clinical procedure for Sasang type diagnosis and treatment with acupuncture (Fig. 1) may be divided into three steps: (1) differentiation of patient's Sasang type with clinical symptoms and biopsychological traits; (2) confirmation of Sasang type with type-specific acupuncture; and (3) type-specific acupuncture treatment with TGA.

3.1. Diagnosis of patient's Sasang type with clinical information

The Sasang type differentiation might be the most tricky and difficult part for the clinicians. Reliable clinical indices of psychological, physical, and clinical symptoms are needed for the Sasang type diagnosis.

As for the psychological traits (Fig. 2A), the Sasang Personality Questionnaire (SPQ) is a clinically validated measure of Yin-Yang temperament and Sasang typology^{2,15} and showed positive and negative correlation with Novelty Seeking and Harm Avoidance of Temperament and Character Inventory (TCI), respectively.^{15,22,23,25} The SPQ score of *So-Yang*, *Tae-Eum*, and *So-Eum* Sasang types are in decreasing order and stay stable over the ages even with pathological symptoms.^{2,30}

As physical characteristics (Fig. 2B), the PI and BMI of *Tae-Eum*, *So-Yang*, and *So-Eum* are in decreasing order and stable over the ages.^{2,6,31} The BMI and PI represent the big and tall body shape of *Tae-Eum* and *So-Yang* Sasang types from the high parasympathetic reactivity and energetic bodily activity, respectively.⁶ Though there were also studies on circumference of neck and chest and facial width-height ratio of *Tae-Eum* Sasang types,² clinical validation considering ethnicity, sex, and age is needed for generalization as for now.

There are seven categories of clinical symptoms (Fig. 2D)^{7,8,26} including digestive function, bowel movement and defecation, temperature preference, perspiration (amount and feeling after it), urination, sleep, and susceptibil-

ity to stress and fatigue. The type-specific pathophysiological symptoms and body shape (Fig. 2C) are useful for dividing *Tae-Eum* and *So-Eum* Sasang types, and these are supposed to be based on the individuality of autonomic reactivity.⁷

The clinicians should combine these three categories of clinical measures to identify the Sasang type of a patient.^{22,25} For example, the clinician might diagnose one patient as *So-Eum* type when she or he has low SPQ, PI, and Sasang Digestive Functional Inventory (SDFI) score, and high Harm Avoidance score, and prefers warm food and drinks (Table 1; Fig. 2).

3.2. Sasang type-specific acupuncture points of TGA

There are several rules for selecting six (or five) Sasang type-specific points of TGA^{18,21,22,32}; however, the detailed rationale was not explained in full till now. Three type-specific points (Table 1) are selected for patient's Sasang type and another three supplementary points (ST36, LI4, and LI11) are also combined to enrich the qi circulation during the TGA treatment.

Three type-specific points (Table 1) are selected as follows: First, select one point from the heart meridian (HT8, HT3, HT4, and HT7), which is a concealed governor, to control (suppress) the hyper-activation of *Pae* (metal trait), *Be* (fire trait), *Gan* (wood trait), and *Shin* (water trait) of *Tae-Yang*, *So-Yang*, *Tae-Eum*, and *So-Eum* Sasang types, respectively.

Second, select primary points of liver (LR3), kidney (KI3), lung (LU9), and spleen meridian (SP3) to support the hypo-activation of *Gan* (liver meridian), *Shin* (kidney meridian), *Pae* (lung meridian), and *Be* (spleen meridian) of *Tae-Yang*, *So-Yang*, *Tae-Eum*, and *So-Eum* Sasang types, respectively.

Third, select primary points of lung (LU9), spleen (SP3), liver (LR3), and large intestine meridian (LI4) to suppress the hyper-activation of *Pae*, *Be*, *Gan*, and *Shin* of *Tae-Yang*, *So-Yang*, *Tae-Eum*, and *So-Eum* Sasang types, respectively (Table 1). As for the *So-Eum* type, the primary point of large intestine, a pair organ of kidney in Sasang typology, is selected as a substitute of kidney meridian to follow the tradition not to suppress the kidney.

For example, the *Tae-Yang* type has hyper-activated *Pae* (lung and metal trait) and hypo-activated *Gan* (liver and wood trait) as their innate organ system. The fire point (HT8) of the heart meridian is supported to control the metal trait. The primary point of lung (LU9) is stimulated to suppress the hyper-activity of the lung meridian, and the primary point of liver (LR3) is stimulated to support the hypo-activity of the liver meridian (Table 1). As for the needling, the clinicians should rotate to the left for suppressing and to the right for supporting points. Furthermore, breathing technique is also used to prevent the adverse event of syncope during the acupuncture stimulation.

3.3. Sasang type diagnosis and TGA procedures

The Sasang type diagnosis with type-specific point stimulation and clinical application of TGA procedures would be explained with representative clinical case for better understanding.

3.3.1. Initial diagnosis of patient's Sasang type (Fig. 1A)

Two candidate Sasang types, such as *So-Yang* (with 70% possibility) and *Tae-Eum* (30% possibility), are selected after examining Sasang type-specific psychological traits, physical characteristics, and clinical symptoms (Table 1; Fig. 2) along with age, sex, chief complaints, and past history.

3.3.2. Confirmation of patient's Sasang type differentiation (Fig. 1B)

The clinical response to type-specific acupuncture is examined with epigastric region tenderness (Fig. 3), which would be significantly decreased with correct type-specific acupuncture stimulus. For example, the epigastric region tenderness is examined after stimulating *So-Yang* specific points [HT3 (+), KI3 (+), and SP3 (–) in Table 1]. Then, the epigastric region tenderness is examined after stimulating *Tae-Eum* specific points [HT4 (+), LU9 (+), LR3 (–) in Table 1]. The examination of epigastric region tenderness with the *So-Yang*-specific stimulus was performed once again to compare the magnitude of the decrease of epigastric region tenderness. The type-specific stimulus of *So-Yang* (>70%) showed significantly larger decrease of epigastric region tenderness than that of *Tae-Eum* (<30%).

3.3.3. Sasang type-specific acupuncture treatment (Fig. 1C)

Since the patient was diagnosed as *So-Yang* type, three type-specific points (HT3, KI3, and SP3) and three supplementary points (ST36, LI4, and LI11) are finally selected for TGA treatment (Table 1).²²

The stainless steel needle, 40 mm in length and 0.25 mm in diameter is used for TGA stimulus.²¹ De-qi of aching or dull sensation is acquired after manual stimulation of inserting 0.3–1.5 cm in depth, and retention time of 20 minutes along with deep breathing and self-relaxation is provided. The acupoint supporting technique means rotating the needle clockwise during inhale with a hint of pushing-in, and the acupoint suppressing technique is rotating the needle counter clockwise during exhale with a feeling of pulling-out. TGA can be practiced two to three times a week, however every day when required.

4. Discussion and conclusion

The Sasang typology is a biopsychosocial medicine of the East with proven clinical usefulness,^{10–14,20} and the individuality of autonomic reactivity,⁷ Novelty Seeking and Harm-Avoidance,^{15,22,23,25} Extraversion,²⁵ and Yin–Yang temperament³³ was suggested as its biomedical mechanism.⁷ This review provided detailed description for Sasang type differentiation with clinical information and type-specific treatment with acupuncture.

TGA was suggested to be useful for the restoration of biopsychosocial disturbances. It was reported that TGA might be effective for unexplained autoimmune disease, psychosomatic illness, depression and anxiety, chest tightness and pressure, insomnia, cognitive dysfunction, chronic fatigue syndrome, chronic pains in multiple sites from neuromuscular

conditions, shoulder stiffness, and imbalance of sympathetic and parasympathetic systems though it needs further validation.^{17,18,20–22}

TGA was originally constructed to enhance the qi and blood circulation for restoring the balance of Yin–Yang in Sasang typology.^{18,20,21} Considering that clinical effects of biopsychosocial interactions might be explained with the autonomic balance of sympathetic and parasympathetic system³⁴ and the anti-inflammatory effect of vagal tone control,³⁵ the improvement of clinical symptoms with type-specific acupuncture would be a result of restored balances in autonomic reactivity, and the decrease of epigastric tenderness by TGA might be a measure of vagal tone and gastrointestinal balance of autonomic nervous system.

The TGA technique might have limitations even with its suggested clinical efficacy and popularity.^{20,22} There are theoretical discrepancies in selecting type-specific acupuncture points of TGA, such as selecting meridians and acupuncture points for treatment based on formerly established East-Asian medicine. There might be notable disparities and similarities as for the function of internal organs; however, alternatives for selecting acupuncture points excluding that would not be available since perfectly matching theories for the four-internal organ system in acupuncture could not be improvised without previously established clinical experiences, as described in Jema Lee's book.^{36,37} Another study by clinical specialist of Sasang typology has also suggested several type-specific points based on medical classics and *Sa-Am* acupuncture; KI3 and GB34 are specific for the *So-Yang* type, ST36 for the *Tae-Eum* type, and LI4 and LR3 for the *So-Eum* type.³⁸ Prospective studies with type-specific points to show clinical efficacy are warranted in near future.^{39,40} Additionally, studies on standardization of epigastric region tenderness measure and related biological mechanism with heart rate variability are guaranteed since the clinical reliability of TGA depends on these.^{7,41}

The Sasang typology is a preventive medicine efficient for improving physical and psychological subjective symptoms and restoring Yin–Yang balance before any significant health problems prominent.^{2,22} Although the type-specific acupuncture and herbal medication might be clinically useful, Jema Lee has strongly insisted that the character development of Confucianism, Moderation, or Golden Mean is the most important entity for the health promotion.⁴² The importance of character development in mental and physical health was supported by recent personality studies.^{43–45}

The Sasang typology would be useful for the personalized application of traditional medicine such as acupuncture and medical herbs³; however, it was not widely used by clinicians due to lack of information on clinical diagnosis and treatment. The detailed review on TGA technique and differential diagnosis with clinically validated SPQ, SDFI, and PI in this study would be useful for foreign clinicians who want to use Sasang typology and clinical researchers planning prospective clinical trials.^{2,6,16,24,26} The Sasang type-specific herbal medication requires understanding on the cold–hot subgroup and severity of disease in combination with Sasang type differentiation, and its details would be provided elsewhere.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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