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Similarities and Differences in Interoceptive Bodily Awareness Between US-American and Japanese Cultures: A Focus-Group Study in Bicultural Japanese-Americans

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Abstract	Interoceptive awareness is the conscious perception of sensations that create a sense of the physiological condition of the body. A validation study for the Japanese translation of the Multidimensional Assessment of Interoceptive Awareness (MAIA) surprised with a factor structure different from the original English-language version by eliminating two of eight scales. This prompted an exploration of the similarities and differences in interoceptive bodily awareness between Japanese and European Americans. Bicultural Japanese-Americans discussed concepts and experiences in the two cultures. We conducted focus groups and qualitative thematic analyses of transcribed recordings. 16 participants illustrated cross-cultural differences in interoceptive bodily awareness: switching between languages changes embodied experience; external versus internal attention focus; social expectations and body sensations; emphasis on form versus self-awareness; personal space; mind–body relationship; context dependency of bodily awareness and self-construal. The participants explained key concepts that present challenges for a Japanese cultural adaptation of the MAIA, specifically the concept of self-regulation lost in the factor analysis. In Japanese culture, self-regulation serves the purpose of conforming to social expectations, rather than achieving an individual self-comforting sense of homeostasis. Our findings will inform the next phase of improving the MAIA's cross-cultural adaptation.

Footnote Information	A. Freedman, H. Hu: co-first authors.

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ORIGINAL PAPER

Similarities and Differences in Interoceptive Bodily Awareness Between US-American and Japanese Cultures: A Focus-Group Study in Bicultural Japanese-Americans

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Abstract Interoceptive awareness is the conscious perception of sensations that create a sense of the physiological condition of the body. A validation study for the Japanese translation of the Multidimensional Assessment of Interoceptive Awareness (MAIA) surprised with a factor structure different from the original English-language version by eliminating two of eight scales. This prompted an exploration of the similarities and differences in interoceptive bodily awareness between Japanese and European Americans. Bicultural Japanese-Americans discussed concepts and experiences in the two cultures. We conducted focus groups and qualitative thematic analyses of transcribed recordings. 16 participants illustrated cross-cultural differences in interoceptive bodily awareness: switching between languages changes embodied experience; external versus internal attention focus; social expectations and body sensations; emphasis on form versus self-awareness; personal space; mind–body relationship; context dependency of bodily awareness and self-construal. The participants explained key concepts that present challenges for a Japanese cultural adaptation of the MAIA, specifically the concept

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of self-regulation lost in the factor analysis. In Japanese culture, self-regulation serves the purpose of conforming to social expectations, rather than achieving an individual self-comforting sense of homeostasis. Our findings will inform the next phase of improving the MAIA's cross-cultural adaptation.

Introduction

Interoceptive awareness has been defined in the research literature in a variety of ways (Farb et al. 2015; Khalsa et al. 2018). For the purposes of this study, interoceptive awareness refers to the conscious perception of sensations from inside the body that creates the sense of the physiological condition of the body (Craig 2003), such as heart beat, respiration, satiety, and the autonomic nervous system sensations related to emotions (Craig 2002) and stress (Durlik, Brown, and Tsakiris 2014). Similarly, the term body awareness refers to the conscious perception of sensations from inside the body including proprioception, but is also often used in a self-objectified way describing how one believes to be perceived by others from the outside (Mehling et al. 2009).

Research interest in the role of interoceptive awareness in mind–body interventions, such as mindfulness training, meditation, yoga, tai chi, and contemplative practice has grown world-wide in the last two decades (Khalsa et al. 2018). This is due in part to numerous findings that variations in interoception are implicated in behavioral health (Khalsa et al. 2018). Dysregulation of interoception is associated with psychopathology, whereas training or improving interoception through mind–body interventions and contemplative practice can improve overall health (Farb et al. 2015).

The Multidimensional Assessment of Interoceptive Awareness (MAIA) was developed to capture levels of interoceptive bodily awareness that participants may be able to perceive and self-report (Mehling et al. 2012). The tool was designed to enable researchers to measure changes resulting from mind–body interventions, such as mindfulness training, meditation, yoga, and Tai Chi, and has been applied in a variety of research settings. The MAIA consists of eight scales: Noticing, Not-Distracting, Not Worrying, Attention Regulation, Emotional Awareness, Self-Regulation, Body-Listening, and Trust.

As the use of mind–body interventions becomes more globalized, including countries and cultures from which the underlying contemplative practices originate, a more culturally informed framework of both qualitative and quantitative research becomes imperative. The MAIA, for example, has been translated into over 25 languages and for most of them, there is evidence that these translations have acceptable psychometric properties similar to those of the original English version. However, in languages and cultural populations in which the psychometric properties are dissimilar to the original, exploratory investigation into the underlying similarities and differences in the cultural conception of interoceptive and/or body awareness is warranted.

One recent study evaluated the validity of the Japanese translation of the MAIA, MAIA-J, in a sample of Japanese psychology students (Shoji et al. 2018). The factor

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structure of the MAIA-J was found to be slightly different from the original English-language version. Exploratory factor analysis (EFA) eliminated 7 questionnaire items, decreasing the number of items from 32 to 25 and the number of factors from 8 to 6 (Shoji et al. 2018). This eliminated the MAIA Not-Worrying scale (the tendency not to experience emotional distress with physical discomfort) and the Self-Regulation scale (the ability to regulate psychological distress via attention to body sensations). Most other original factors were confirmed in the university student sample. Another study confirmed this six-factor structure of the MAIA-J in a similar sample of Japanese university students (Fujino 2019).

Although the validity of the MAIA-J was confirmed by both studies, the elimination of the Self-Regulation and Not-Worrying scales is intriguing, and may be attributable to several factors, including translation issues, sample characteristics not representative of the general population, and culturally specific framework of body awareness (Shoji et al. 2018). Based on cognitive interviews in Shoji et al.'s study, the difficulties with the Not Worrying scale in the MAIA-J appeared to be primarily due to translation problems. Other language and cultural adaptations of the MAIA also demonstrated weak internal consistency of this scale (Mehling 2016).

Reasons for problems with the Self-Regulation scale in the MAIA-J are less clear. In longitudinal studies this scale appeared to be one of the most important ones (Bornemann et al. 2014; Mehling 2016). In its original version, the four items are: "When I feel overwhelmed, I can find a calm place inside"; "When I bring awareness to my body, I feel a sense of calm"; "I can use my breath to reduce tension"; "When I am caught up in thoughts, I can calm my mind by focusing on my body/breathing." In the MAIA-J, only the last Self-Regulation item was retained but moved to the Body Listening scale. For comparison, in both other East Asian translations, none of the original items were lost: the Taiwanese translation retained the original 8-factor structure (Lin et al. 2017), the Korean version found a better model fit with 7 factors: Self-Regulation and Body Listening items were combined into a new 7-item "Return to Body" scale.

The Japanese translation of another body-related psychological questionnaire met with a similar fate: the Japanese version of the Body Attitude Test differed from the original Dutch version in the factor analysis, which could not distinguish between "negative appreciation of body size" and "general body dissatisfaction". The authors discussed the possibility of cultural differences and hypothesized that Japanese people are unable to distinguish body perception from body dissatisfaction. In addition, Japanese women appeared to have fewer positive feelings towards their body image (Kashima et al. 2003).

Japanese cultural traditions were historically influenced by Zen Buddhism, with its implicit practice of mindful attention to body sensations, particularly to breathing (Ozawa-de Silva 2002; Sekida 1975). Zen practice, which developed from Mahayana Buddhism and was introduced to Japan from Korea and China, generally emphasizes embodied practices (Noguchi 2004; Park, Sung, and Misan 2016a, b) more than the Theravada Buddhist tradition with its stronger presence in centers in the West, particularly in the US. However, the importance of Zen practice in Japanese culture has been dwindling since World War II (Bodiford 1992), and

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Japan's traditions have even been described—and bemoaned—as "effectively obliterated" (Noguchi 2004), while at the same time Buddhist practices have become increasingly popular in the West, although often in a secularized adaptation (Desbordes 2016; Kirmayer 2015). Japan is one example of a country in which "Western" adaptations to mindfulness practice, e.g. Jon Kabat-Zinn's work (Kabat-Zinn 2013), a practice based on Eastern tradition, are reimported and become increasingly popular, both in academia and popular culture. Publications on mindfulness (written in katakana in Japanese to indicate the "Western" origin of the word) and meditation, written by Zen monks (Yamashita 2018) and mental health professionals (Hiroaki 2011), have appeared within the last decade. In Zen Buddhist communities in Japan, efforts are underway to integrate the embodied Zazen practice, which uses sitting form and body awareness to calm the mind, with "Western" mindfulness practice: Ryodo Yamashita, a Japanese monk who has taught Zazen in the US contends that, since "Western" mindfulness practice contemplates the thinking mind, it may be a valuable addition to the traditional Zen culture in Japan (Yamashita 2018). Nevertheless, as discussed in Shoji et al. (Shoji et al. 2018), although there is a large literature on cultural differences between Japanese and Western psychology, publications on cross-cultural differences of interoceptive bodily awareness are sparse (Ma-Kellams 2014; Maister and Tsakiris 2014).

This study thus aims to further explore similarities and differences between Japanese and US-American interoceptive bodily awareness in bilingual-bicultural adults who can describe both perspectives. One limitation of the Shoji et al. validation study was its reliance on responses from young university students without determination of their experiences with mind–body therapies or practices (Shoji et al. 2018). To complement the validation study, we interviewed individuals with dual Japanese/US-American identities from a wider range of age, gender, education level, occupational backgrounds, and prior engagements in mind–body practice.

We recruited focus group participants who identified as Japanese individuals, are bilingual in Japanese and English, and have had enough experience in both Japan and the US to comment from both cultural perspectives. Our aim was to learn more about potential cultural differences in the concept of body awareness through their lived experiences. This paper summarizes the ensuing discussion, complemented by exploratory quantitative data collection of their socio-cultural orientations and responses to MAIA in both languages. The study was approved by the University's Institutional Review Board.

Methods

Participants

We recruited bilingual, bicultural Japanese-Americans living in the US to participate in a focus group. We advertised in the San Francisco Bay Area, distributed flyers in San Francisco's Japantown stores and cultural agencies, and

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placed an ad in a Japanese-language regional newspaper. Interested potential participants called a research assistant, whose first language was Japanese. She explained the study and screened for eligibility in either language. Inclusion criteria were fluency in Japanese and English, age 18 years or older, and residence as an adult for at least 2 years in both the US and Japan.

Overall Study Design

Participants received consent forms and questionnaires, including the English and Japanese MAIA, in the mail to complete at home and bring to the first focus group session. Pre-focus group questionnaires also collected demographics on age, gender, education, and a brief description of their prior experience with mind–body and/or contemplative practices. To further characterize the sociocultural orientations of our participants, we added self-report instruments regarding acculturation, level of bicultural integration, and degree of independent and interdependent self-construal. Each participant attended two successive sessions. The first session discussed potential cultural differences in the experience and awareness of the body, in the context of being familiar with the MAIA. The second session reviewed specific issues with MAIA items.

Questionnaires

MAIA and MAIA-J Questionnaires The original English version of the MAIA (Mehling et al. 2012) includes 32 items on eight multi-item scales: (1) Noticing: the awareness of uncomfortable, comfortable, and neutral body sensations; (2) Not-Distracting: the tendency to ignore or distract oneself from sensations of pain or discomfort; (3) Not-Worrying: the absence of emotional distress or worry with sensations of pain or discomfort; (4) Attention Regulation: the ability to sustain and control attention to body sensation; (5) Emotional Awareness: the awareness of the connection between body sensations and emotional states; (6) Self-Regulation: the ability to regulate psychological distress by attention to body sensations; (7) Body Listening: actively listening to the body for insight; and (8) Trusting Scale: the experience of one's body as safe and trustworthy. The MAIA is in the public domain (website, accessed 5/2020). Higher scores indicate higher interoceptive bodily awareness. We used all original 32 items in their Japanese translation. Participants completed the MAIA in both English and Japanese in one sitting at home, in part out of convenience to keep participant burden low, in part for participants to more clearly notice differences in their ease of responding to the items. For this study, an additional check box accompanied each Japanese item to be marked when an item was unclear, difficult to respond to, or confusing. The checked items were discussed in the second focus group session.

General Ethnicity Questionnaire (GEQ) (Tsai, Ying, and Lee 2000) Developed and validated for Chinese-Americans, the GEQ has been used in numerous other cultures to assess acculturation. With permission by the author, we modified the

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39-item version into an English-language Japanese-American version with a 6-point Likert scale. It assesses preferred use in Japanese language (Japanese Language Affiliation), participation in Japanese cultural activities (Activities) and social affiliation (Social Affiliation), pride in Japanese culture (Pride), preference for Japanese media (Media), and Japanese food (Food). Higher scores indicate higher Japanese cultural orientation.

Bicultural Identity Integration Scale (BIIS-P) (Benet-Martínez et al. 2001) Acculturation is the process by which individuals from one culture adopt values and attitudes of another culture, e.g. after immigration to a new country. In multicultural societies, individuals may adopt a bicultural identity. To assess this form of cultural adaptation strategies, we applied the BIIS-P, comprised of a short descriptive vignette that individuals rate with regard to how much it reflects their bicultural identity experiences. Its pilot version included a single composite item that we reworded for Japanese-USAmericans and separated into four items, using a 6-point Likert scale. Higher scores indicate lower levels of bicultural integration (i.e. viewing the two cultural identities as separate, rather than complementary and integrated with each other) (Benet-Martínez et al. 2001).

Singelis Self-construal Scale (SSCS) (Singelis 1994) Validated in a multi-cultural sample (Singelis and Brown 1995), the SSCS includes 30 statements answered on two 6-point Likert subscales, which measure the independent and interdependent dimensions of self. Based on concepts developed by Markus and Kitayama (1991a), it proposes that cultural norms, beliefs, and values shape the structure and content of the self. According to this model, people in the West hold an independent view of the self that emphasizes the separateness, internal attributes, and uniqueness of individuals, whereas many non-Western people hold an interdependent image of self, stressing connectedness, social context, and relationship. Higher values indicate stronger agreement with statements reflecting the respective style of self-construal.

Similar to the concept of bicultural identity integration, Singelis et al. (2018) found that high scores in either self-construal are not mutually exclusive; one can score high in both independent and interdependent self-construal, depending on life and sociocultural experiences. Preference for one self-image over the other is assessed by subtracting the interdependent from the independent self-construal. Positive difference scores indicate stronger independent and negative scores stronger interdependent self-construal. Given our focus group participants' sociocultural and linguistic background, we expected relatively high scores in both domains.

Focus Groups

Structure Focus group sessions lasted 2 h and were led by two moderators (AF and WM), supported by a bilingual Japanese research assistant who helped with logistics and could function as an ad-hoc translator for specific Japanese terms when needed.

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Groups met twice, 1 week apart. Discussions were conducted in English, though participants cross-talked in Japanese as well. The sessions were recorded, transcribed, and translated from Japanese into English when necessary. Participants were paid $40 for each session. In addition, a Japanese psychologist with expertise in mind–body interventions was present to assist with terminology if needed.

Session One Focus Group Guide The aim of the first focus group session was to elicit statements that could illustrate potential cultural differences in the experience and awareness of the body. The first session was semi-structured, beginning with an open-ended prompt: "Please tell us from your personal perspective about differences between Japanese-American and European-American cultures in how you think and talk about what you feel with your body. By 'feeling,' we mean sensations that you feel in your body, which can be emotional (e.g., anxiety, sadness) or physical (e.g., stomach pain, muscle tensions)." Probing questions included, for example, "Do you experience a major difference in the cultural conception of the body between Japan and US-American cultures?"

The second question was: "We have read that the 'sense of self,' which is a European-American term, the sense of who you are, in the US may be more understood as determined by each individual, thought of as independent, whereas in Japan it may be more determined by a sense of belonging to a group, thought of as interdependent. Do you believe that this includes how you perceive or attend to your body? Do you feel that there may be a difference between Japanese and US-American cultures?" Probing questions were: "Do you find yourself sometimes switching back and forth from a more Japanese to a more US-American way of thinking in regards to your body?" and "Can you please illustrate this for us using your own experience?"

Session Two Focus Group Guide The second session for both focus groups reviewed specific MAIA items that focus group participants had identified as difficult to answer or confusing. We read these items to the group, preceded by the question: "We found that several questions on the MAIA-J questionnaire were more difficult to respond to than others. Can you please share your thought process when you read the following question(s): …." Probing questions were: "Why was it so difficult to answer this question?" and "Would you understand this question differently in a Japanese cultural context compared to US-American culture?"

Quantitative Analyses

Summary scores for the MAIA and MAIA-J scales were calculated if at least half of the items for each scale were answered. Missing values for the SSCS were substituted by the closest integer to the mean of the remaining scale items. Distribution was assessed for normality by the Shapiro–Wilk W test.

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Qualitative Analysis

Methodology The focus of the qualitative analysis was to explore the ways in which culture—specifically, Japanese culture—influences the physiological and cognitive aspects of interoceptive bodily awareness. We assumed a qualitative methodology that leans towards ontological realism, rather than relativism. Our focus group methodology was based on Lincoln and Guba's post-positivist paradigm in which the inquirer is cast in the role of "expert" (in the topic of interoceptive awareness) (Lincoln and Guba 1985). However, our inquiry also necessitated a space for exploration, because the focus group moderators did not have prior knowledge of interoceptive awareness in Japanese culture. Given the topic of interoception, it was appropriate for our methodology to also draw from phenomenology, a philosophical standpoint that views the human body as a lived body "wherein subjectivity is always corporeally expressed (Leonard 1989)." Our method of inquiry acknowledged that there are certain descriptive "truths" to the culture within Japanese society that—at this point in time—hold a degree of realism that was not influenced by the researchers' subjectivity or reflexivity (as in, for example, the constructivist approach) (Charmaz 2006). The impetus of this study was that the validation of the MAIA-J did not fit the existing hypotheses about interoceptive awareness when applied in Japan. Therefore, a post-positivist methodological stance appeared appropriate to "challenge" the existing hypotheses (Guba and Lincoln 1994) that the investigators had developed in the West. Our epistemological stance from phenomenology allowed us to study the dimensions of a person's lived experience, leaving room for an exploration of the phenomenology of body situated in a society, which is not necessarily constant and fixed over time.

Given our methodological strategy of eliciting new information rather than confirming a priori theory, we used an inductive approach to identify common themes, patterns, and relationships within the responses of the focus group members, following the strategy of Lincoln and Guba (Krueger and Casey 2000; Lincoln and Guba 1985). The focus groups sessions were recorded, transcribed, and uploaded to Dedoose, a cross-platform app for analyzing qualitative and mixed methods research (Dedoose 2018). Since small portions of the focus group responses were spoken in Japanese (for example, to describe a word that did not have literal translations in English), our native-Japanese research assistant aided in the transcription of these words and phrases and offered contextual information in the transcripts in a way that caused minimal bias for the analytic process.

The coding process was supervised by SA, an anthropologist with extensive qualitative research expertise. Coding was conducted by three authors (AF, LS, WM), who independently scanned primary data for words and phrases most commonly used by respondents and assigned preliminary codes and categories. For focus group excerpts that included a Japanese word (e.g. "*tatamae*") or culturally specific terminology (e.g., "*kata*"), in vivo coding was employed initially to ensure that the raw data were accurately reflected in the analysis (i.e., without inaccurate

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translation or inference). After independent coding, the three authors (AF, LS, WM) met to discuss and compare derived codes and categories, which were, in turn, iteratively refined until consensus was reached to ensure inter-rater reliability. Finally, thematic analysis was conducted by four authors (AF, LS, WM, HH) to resolve coding differences through discussion in conference meetings and develop a cogent conceptual model derived directly from participants' descriptions of their lived experiences. During these discussions, the larger themes such as "social expectations and body sensations" were developed from the more specific in vivo codes and categories such as "reading the air" or "*gaman*," as well as the timing and contexts within the focus group, during which these phrases arose. These thematic discussions included two Japanese-speakers (HH, LS) to ensure that linguistic and cultural nuances were not lost in translation from the original transcript, since the focus group facilitators (AF, WM) did not speak Japanese. (The raw data and codes are deposited at https://doi.org/10.7272/Q6XG9PCW).

Results

Participants' Characteristics

From May to July 2017, we recruited 16 participants for two focus groups (each consisting of two successive sessions) of 7 and 9 participants, respectively. Participants' ages ranged from 25 to 70 years (mean age 48 ± 11.8). All participants had lived in both Japan and the US, and most had lived in each country for over 5 years, except for two participants who had only lived in the US for 2 years. Nine participants had Bachelor's degrees, six had Master's degrees, and one had a PhD. All participants were born to Japanese parents. Two participants were born in Hawaii, one in Germany, and all others in Japan. One participant was male, one was transgender male, all others were female. Regarding prior experience in mind–body methods, 14 participants had been exposed to or experienced at least some Tai-Chi, yoga, meditation, or other mind–body practices; only one reported a regular practice. Our focus group participants reflected a population of individuals who identified as being of Japanese ethnicity with substantial living experience in both Japanese and US-American cultures.

Compared to a previous mostly North-American study sample (164 students or teachers of mind–body practice for less than 5 years) (Mehling et al. 2012), our focus group participants appeared to score noticeable lower on the MAIA scales for Not-Distracting, Not-Worrying, Attention Regulation, Emotional Awareness, and Body-Listening, but similar for Noticing, Self-Regulation and Trusting (Table 1). Scores on both MAIA and MAIA-J scales were similar. One participant missed the English version. Six participants answered only one of the 3-item MAIA Trusting scale, and four did not complete this scale in the MAIA-J.

Of the questionnaires assessing socio-cultural orientations and acculturation (Table 2), only the SSCS responses demonstrated a non-normal score distribution. Participants demonstrated mostly mixed to relatively low acculturation status, with relatively high levels of pride for Japanese culture and preference for Japanese

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Table 1 Results of MAIA and MAIA-J responses

	Our focus group participants				Comparison[c]	
	MAIA[a]		MAIA-J[a]		MAIA[a]	
Scale	Mean[b] (SD)	*n*	Mean[b] (SD)	*n*	Mean[b] (SD)	*n*
Noticing	3.66 (0.78)	15	3.38 (1.05)	15	3.79 (0.60)	164
Not-Distracting	2.39 (1.12)	15	2.25 (1.11)	16	3.13 (0.79)	164
Not-Worrying	2.36 (1.20)	15	2.31 (1.17)	16	3.13 (0.88)	164
Attention Regulation	2.90 (0.75)	15	3.00 (1.01)	16	3.65 (0.68)	164
Emotional Awareness	3.79 (0.64)	15	3.52 (0.86)	15	4.13 (0.79)	164
Self-Regulation	3.31 (0.73)	15	3.30 (0.75)	16	3.79 (0.94)	164
Body Listening	2.73 (0.97)	15	2.77 (1.25)	16	3.41 (0.94)	164
Trusting	4.06 (0.84)	9	3.31 (1.35)	12	4.09 (0.75)	164

[a] Higher score indicates higher degrees of interoceptive awareness

[b] Possible range: 0–5

[c] For comparison, we present MAIA data from a sample of 164 mostly North-Americans who are students of or less experienced teachers of mind–body practice.(7)

Table 2 Descriptive statistics for GEQ, BIIS-P, SSCS [all ranges 0–5]

Measure	*n*	Mean (SD)
Modified general ethnicity questionnaire (GEQ)[a]		
Language affiliation	13	3.61 (0.36)
Social affiliation	12	3.40 (0.77)
Pride	14	3.34 (0.79)
Activities	14	2.70 (1.24)
Media	16	2.27 (1.29)
Food	16	3.3 (0.84)
Bicultural identity-integration scale (BIIS-P[b])	12	2.17 (1.18)
Singelis self-construal scale (SSCS)		
Independent self-construal	16	3.04 (0.61)
Interdependent self-construal	16	2.98 (0.66)
Preference: independent minus interdependent score[c]	16	0.06 (0.86)

[a] Higher scores indicate stronger preference for Japanese culture and thus less acculturation

[b] Higher scores on the BIIS-P indicate lower bicultural identity integration

[c] Higher (positive) scores indicate preferential independent and lower (negative) scores preferential interdependent self-construal

language affiliation, social affiliation, and food. Preference for activities slightly favored Japanese cultural activities over US-American. Media preference subscale showed the strongest acculturation. Consistent with the GEQ findings, our participants demonstrated high degrees of bicultural identity integration.

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Figure 1 shows the distribution of values for the preferential (difference between) independent and interdependent self-construal scores. Most values were between 0 and + 1 [possible range − 5 to + 5], indicating slightly higher or equal strength of independent versus interdependent self-construal. Five participants had negative values, indicating a dominant interdependent self-construal. Plotting independent versus interdependent self-construal (Fig. 2), 11 of 16 participants were found in the right upper quadrant demonstrating strong self-construal in both independence and interdependence. Such dual developed self-construal pattern is found in bicultural individuals (Yamada and Singelis 1999), although the degree to which participants viewed their dual cultural identities as separate or integrated (BII) varied (Fig. 3).

AQ5

Qualitative Analysis Results (Table 3)

Cross-Cultural Differences in Interoceptive Bodily Awareness

Switching Between Languages Changes Embodied Experience Our participants described thinking, feeling and behaving differently when they speak English versus Japanese, and that their personality and behavior immediately change when they switch between languages. In general, they felt that they are more polite when speaking Japanese and more assertive or casual when speaking English, and that this shift is reflected in changes in their tone of voice, their gestures, and their body language.

> My body language changes. I feel, with English I'm more open. And perhaps more comfortable. (P12)
>
> [In Japanese,] you might not be so expressive in hand gestures, or even face gestures. (P11)

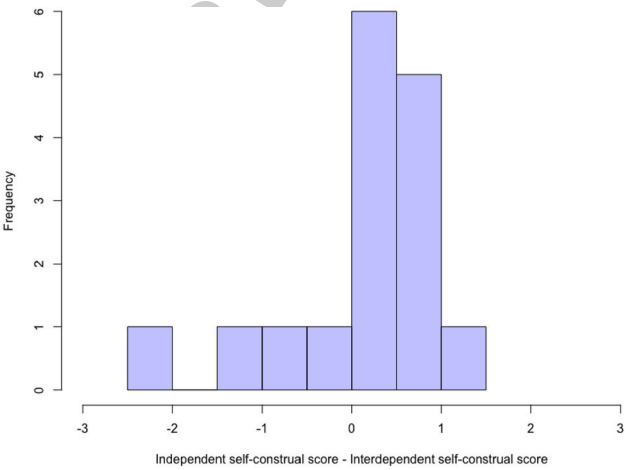

Fig. 1 Frequency distribution of independent minus interdependent SSCS (positive values indicate preferential independent over interdependent self-construal)

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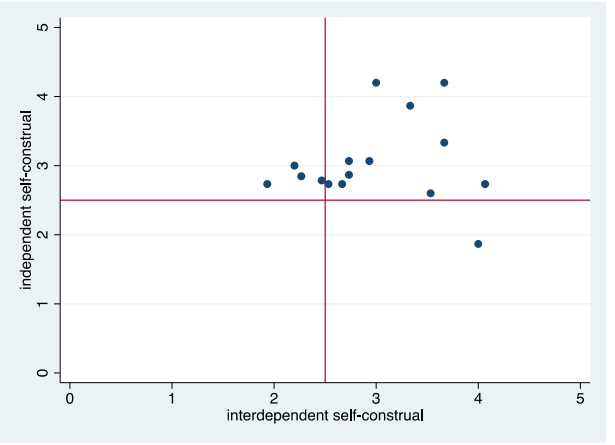

Fig. 2 Scatter plot of independent self-construal score vs interdependent self-construal score. Right upper quadrant=high independent and high interdependent self-construal (n=11); left upper quadrant= high independent and low interdependent self-construal (n=4); right lower quadrant=high interdependent and low independent self-construal (n=1); left lower quadrant=low independent and low interdependent self-construal (n=0)

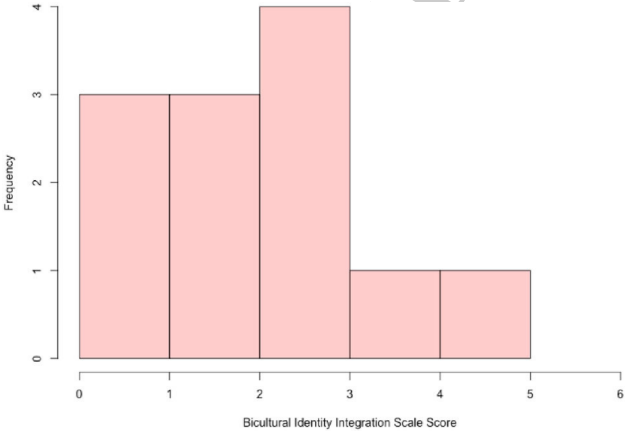

Fig. 3 Frequency distribution of BIIS-P (higher bicultural identity integration construct is reflected by lower scores on the BIIS-P)

Our participants stated that speaking Japanese involves more onomatopoeia (i.e., words imitating a sound associated with what is named), which changes the way they express emotions and related body sensations and allows for conveying vague emotions and feelings without explicitly talking about them.

> In Japanese those words actually express your body feeling or emotional senses… You don't have to really talk about it, though you can share the feeling. We assign different sounds to different feelings, emotions, whether you are feeling anxious, maybe around your chest: *Doki doki suru*. (P16)

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Speaking in Japanese they also use references to anatomical body parts or regions, such as Hara, to express emotions. When asked to locate it anatomically, most stated that *hara* is around the belly button and best translated as stomach, gut, or belly.

> We have an expression saying: '*Hara wo Watte Hanasou*' (腹を割って話そう, literally: 'let's talk opening the belly'). It means to lay everything on the table, frankly and fully show '*honne*': real intentions by opening the belly and showing every thought inside of ourselves.(P10)

Honne can be translated as one's private self or thoughts. Reference to *hara* is also commonly used to verbally express anger (腹がたつ *hara ga tatsu*; literally: my stomach is standing up). Another example of a body part mentioned to express emotion is *mune* or chest/heart, such as in the expressions 胸が躍る(*mune ga odoru*, literally: my heart is dancing) or 胸が高鳴る (*mune ga takanaru*, literally: my heart is beating hard). Both are used to convey the feeling of excitement. Although anatomically defined, these references are used more as a figure of speech, generally without any sensory awareness of the involved body parts.

> Actually, sometimes I feel when I'm really, really, really angry I feel something in my stomach…. But when you ask a person 'do you feel that in your body?' they would say 'what are you talking about?'(P4)

External Versus Internal Attention Focus Our participants stated that, compared with the US, in Japanese society one pays much more attention to how one is perceived by others (externally), rather than how one feels internally. The concern about how one may be viewed by others creates a habit of constantly observing one's own actions through the eyes of others, a mental habit that influences almost everything one does.

> [I am always thinking] how other people perceive me or how I am perceived from others. And I think that's kind of the way we learn to self-regulate.(P1)

The participants noted the extraordinary amount of external orientation of attention required as a member of Japanese society, and how this social orientation is firmly rooted in the culture and socialization process. The participants also described this in contrast in how they direct their attention in the US, noting that it is easier as an US-American to pay internal attention to the self, while as a Japanese it is difficult to turn the focus away from the surrounding and back to inside themselves. "[It is difficult] turning everything off and sort of like re-evaluate the inside…What do you mean like 'me' or 'my body'? It was always about, like, external stimuli or environment or other people, relationships. And it's sort of hard to bring it back to yourself."(P8)

The participants further illustrated this external orientation of attention with three social phenomena in Japan: the fear of losing face (shame), social avoidance (*Tajinkyofusho*), and the romantization of suicide. They described the Japanese culture as a culture of shame, where people are aware of shame from a young age. The self-objectifying over-focus on awareness of the outside, of what other people may think, can lead to social avoidance and isolation. *Taijinkyofusho*, for example,

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is a form of social anxiety where individuals are scared to go outside because they do not want to cause trouble to others around them, rather than being afraid of what others may do to them, as in social phobia. Suicide, in turn, has been romanticized as a way to clear one's perceived shame and to save one's face, which gives it a distinct positive cultural value. Again, in contrast to what they have experienced in US-American cultures, these social phenomena related to external orientation appear to be much more common in Japan.

Social Expectations and Body Sensations Related to external orientation, considerations for the group appear to be more important than talking about oneself and one's physical and emotional needs. This preference of group needs over one's individual needs created difficulties in answering the I-statements on the MAIA. Most importantly, body sensations that could be out of line with the group would be repressed as a form of self-regulation, in order to avoid causing trouble for others.

> Even if I was sick, I would still go to work. Even if I was coughing, I would wear my mask, and then I would still go. And then you have to kind of just endure, *gaman* 我慢, because if you take off then you are causing trouble to everybody around you. So you have kind of this pressure to just endure and go. (P9)

Gaman means to "endure" or to "withstand the difficulties" in order to meet social expectations and achieve social harmony, and that *gaman* contributes to repressing feeling strong emotions and ignoring bodily sensations. Taken to the extreme, *gaman* has led to death by overwork (*karoshi* 過労死) or suicide.

> Japan has one of the highest suicidal rate I think in developed countries. … And maybe that has to do with not being able to talk about your body, or self-awareness or not paying attention to your body warnings kind of things… social structure is causing that kind of inhibition.(P1)
>
> So sometimes gaman, or self-sacrifice for fitting in the context, is not good; but we are expected to ignore our body sensations as a way of self-sacrificing for collective virtue.(P4)

Participants stated that from an early age, social expectations are integrated in culture and education, and children are taught to conform, to be normal, to "fit in," and to "follow the rules."

> [In Japan] 'the nail that sticks up gets hit on the head.'… But over here [in the US] it's the squeaky wheel gets the grease.(P9)

Meeting social expectations requires "reading the air," feeling the atmosphere in the social surroundings, being particularly sensitive, knowing the unspoken rules, and behaving appropriately in each context. In a new situation, when social expectations are not yet obvious, "reading the air" or observing how others behave is the best way to get by—the preferred coping style.

> [When everyone reads the air properly,] it's like a well-choreographed whole piece, because everybody knows what they are supposed to do.(P9)

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Emphasis on Form Versus Self-awareness Our participants stated that Japanese culture, socialization, and education emphasize reaching a perfect style or form. The form, or *kata* (型), is emphasized to achieve uniformity in school settings, but also in martial arts, tea ceremony, Bonsai, dancing, and other arts. Maintaining the form or style is so important that it may require ignoring body sensations and impulses. This element of early socialization occurs through daily training, starting at a young age; therefore, most Japanese may not realize that they are regulating their behavior and self-expression. This can apparently be seen even in the way meditation is taught in Japan, which emphasizes sitting, being quiet, and copying the teacher "until you get it," in contrast to the US-American style, which tends to focus more on individual body sensations and process explanations. Following the form is considered the first step of all learning, starting with imitating the form, observing and listening, and copying what you see, none of which involves intentionally paying attention to internal body sensations. The emphasis on (physical) form is reflected in the Japanese culture's relationship to the body as a process, throughout which one learns to control mind and emotions, namely by following socially determined embodied forms (King 2000). The mind, calmed by physical form practices, in turn, should be able to control the body (see participant statements below).

> Form first. … Make form. Form controls your mind, that kind of idea.(P10)
>
> In meditation, you know, Zen, we do not talk about it. We just sit and being quiet.(P6)

Personal Space As our participants explained, Japanese body awareness includes a sense of extended personal space when interacting with others. A participant described her sense of 'body awareness' in terms of boundaries around her, rather than as referring to her internal self.

> So rather than my internal inner self, it's more about what's around me, and that is sort of a part of myself too.(P8)

And this sense of 'personal space' needs to be respected to avoid making others uncomfortable by invading their physical space. As a result, Japanese people generally do not communicate by using physical touch, such as hugs, as frequently as their US-American counterparts. The participants told personal stories about how this lack of physical touch (e.g. hugs or handshakes) when greeting people extends into family life with family members. This has bodily implications: if Japanese people are forced into a hug (e.g. in US-American social settings) they may physically stiffen, consciously or not, to protect themselves.

> I feel like my space is being invaded, like my bubble is probably like six feet around.(P9)

Even after decades of living in the US, some of our participants could not adapt to the commonplaceness of a friendly hug and reported that they are mocked for being 'formal' with handshakes and bows. However, public transportation is a public space where strangers interact closely, and the urban Japanese subway system is

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known for being especially packed. Under such circumstances, averting eye contact with others in close proximity appears to be the first line of defense for the individual, as well as the social rule to maintain politeness. The cultural norm is that only when personal space is protected can one feel at ease in one's body.

Mind–Body When we asked our participants how they view the mind–body relationship, there seemed to be a general agreement that the mind controls the body as a top-down process, using the analogy of the mind being akin to the driver of a car, the body. This top-down process of mind over body relates to how illness is perceived, and effects how e.g. meditation is understood in Japan, which may not be different from the general population in the US.

> Lots of Japanese people say that when somebody gets ill…, it's the mind because you get ill. Or, if you are strong in your mind you can conquer it.(P4)
> I think our understanding of meditation is more about the mind, and not so the body.(P1)

Our participant with a regular meditation practice pointed out her observation that the Japanese may have a common concept of mind and body forming a union without an explicit differentiation of mind and body, which is also reflected in the language.

> The word for mind and heart is one and the same, 心 *shin* in Japanese…I think it's too natural for Japanese to accept body as a mind, and mind as a body, so that they have no chance or idea to discern which is which.(P4)

This implied conceptual union of mind and body was also considered to be a reason underlying the lack of conscious verbalization or awareness of one's bodily processes, even during comfort or discomfort. The participants did, however, believe that during times of stress and difficulty, their bodies do "speak up" and serve as an expression of emotions. However, as mentioned before, participants agreed that these bodily sensations may be ignored or suppressed by the mind in order to conform to societal norms or to avoid causing trouble to others.

Bodily Awareness and Self-construal

Context Dependency

In line with external orientation, a major theme in our discussion was the high dependency on context in Japanese culture for defining individuals' identities, roles in society, and their expected behaviors. This shows up, for example, in interactions with people from different levels of the social hierarchy.

> We are identified because of a relationship with others, or a circumstance. So if we are not given the circumstance or context then we cannot identify.(P16)
> You just kind of play the role of whatever the situation is, and you kind of wear a mask… so you don't offend anybody.(P13)

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The mask our participant referred to is called *tatemae*, which is a "polite fiction"(P13) that one puts on without revealing one's true emotions or intentions, so the social interactions can happen smoothly. The opposite is called *honne*, as explained above. Because expectations vary by social context, Japanese people are used to wearing different "masks," saying what is appropriate in each situation, instead of sharing what they actually think or feel. This form of self-regulation in Japan serves the need to fulfill social expectations and achieve collective social harmony. The participants illustrated this "Japanese self-regulation" with examples such as school children holding certain body positions for a long time, suppressing physical impulses that could be viewed as inappropriate, or feeling the social pressure to repress individual body awareness. They contrasted this self-control with the concept of Self-Regulation as it appears in the MAIA, which aims at internally and individually maintaining and sensing homeostasis. The Japanese method of self-regulation is entrained by following rules and by suppressing impulses that could be viewed as inappropriate, which may come at the cost of body awareness. Since this self-regulation training starts from a young age, most people may not be aware of it.

> When we were kids, self-regulation comes in very physical form. [In Japan,] when we line up at the assembly and things in school we line up in a very systematic manner. And even the distance between the students from one behind and in front of you.(P1)
>
> We need to follow all kinds of rules… so you have to follow the external rule to get regulated.(P2)

Difficulties with MAIA Questionnaire Items

The discussion in the second focus group sessions elaborated on translation-related themes, language-based differences, and context dependency, and further deepened our understanding of the cultural differences in self-regulation (discussed in the previous section).

Translation from English to Japanese

The Japanese MAIA translation was perceived as being too direct and too "stiff," making it sound unnatural. Most participants found that questionnaire items needed to include more context to clarify their meaning, particularly regarding the time frame. Some questions were perceived as too ambiguous, and participants were unclear whether the questions referred to potential versus current capabilities.

> You need to change the question kind of dramatically. Not direct translation from English, [but] framing it totally different to get same reaction [in the Japanese version].

Participants also commented on the highly context-dependent nature of the Japanese language. One major difference from English is the frequent absence of the subject within a sentence. The participants noted this as a stark contrast to English, in which

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most sentences about oneself begin with "I", whereas in Japanese, the subject of the sentence is assumed from the context.

Specific Items

Finally, we asked our participants to comment on specific items on the MAIA and MAIA-J. We especially wanted to hear why they had marked some items as difficult to answer. The results, presented in Table 4 in relation to specific MAIA items, were related to the above general language-related and context-related themes. Items of the Noticing and Trust scales lacked context, were unclear regarding tense and conditionality, and participants were unfamiliar with distinguishing conscious appraisal from immediate sensory awareness. Other difficulties related to translating the items to Japanese were words like "home" (item 31) or "place" (item 23) in relation to the body. For item 15, the translation was described as "too vague" or "too abstract," and for item 19 as being "too dramatic."

Discussion

We collected first-person accounts from bilingual Japanese-USAmerican participants in focus groups familiar with both US and Japanese culture. The GEQ, BIIS-P and SSCS data (Table 2) suggest that they represent a unique population of individuals assimilated to both cultures, who are well positioned to discuss the cultural reception of the MAIA and cross-cultural issues surrounding bodily awareness. The participants discussed key concepts that present challenges for a Japanese cultural adaptation of the MAIA, as discussed in the published validation study (Shoji et al. 2018).

With our qualitative results, our participants confirmed numerous reports regarding cultural differences (Markus and Kitayama 1991b). The most commonly described concept of a context-dependent, collectivistic, interdependent self-construal stands in contrast to a Western more autonomic, individualistic, independent self-construal. Such concept, initially proposed as a potential influencer of interoceptive awareness by Shoji et al., was generally confirmed by the lived experience of our study participants, as well as their SSCS scores.

Although the concept of independent vs. interdependent self-construal can be viewed as a reasonable model for quantitative research on culturally constructed self-identities, it is an oversimplification of a more complex process and may fall short of looking beyond potentially "false dichotomies" (Rosenberger 1992:3). The Japanese sense of self has been studied and discussed by many anthropologists both from the West and from Japan (Bachnik 1992; Doi 1977, 1986; Rosenberger 1992). Doi notes that the Japanese translation of "self" is *jibum,* a term that means the "self" as part of a whole (Doi 1977). For Doi, then, no dichotomy exists between relationship and the "individual" (Rosenberger 1992:8). Rosenberger explicitly prefers the term "self" over the term "individual" in order to avoid the "Western concept of essential, consistent identity" (Rosenberger 1992:17), when she describes

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Table 4 MAIA-J items that were considered difficult to respond to including comments

MAIA-J item (Item number as in original English version)	Difficulty	Quotes
2: 'I notice when I am uncomfortable in my body'	Lack of context, tense, and conditionality	(P4) In the English version a situation is limited to as I am unconformable in my body: When I am uncomfortable in my body. But when it comes to the item in Japanese translation, it says "I am noticing I am having discomfort in my body"
3: 'I notice where in my body I am comfortable'	Lack of distinction between sensory awareness vs. conscious appraisal	
4: 'I notice changes in my breathing, such as whether it slows down or speeds up'		
15: 'I can refocus my attention from thinking to sensing my body'	Translation is too abstract and vague	
19: 'When something is wrong in my life I can feel it in my body'	Difference in nuances for severity of "something wrong"; sounds more dramatic in Japanese than English	
23: 'When I feel overwhelmed I can find a calm place inside'	The word "place" in the context of one's own body	(P1) Saying a place, 'the calm place in my body,' doesn't feel right for me
31: 'I am at home in my body'	Translation	(P4) The same item in the English version: 'I am at home in my body,' and in Japanese: 'I can feel comfort in my body.' For English version, I assessed the extent of which I understand or accept my body as a secure base. For Japanese version, I assessed more about my bodily sensations, the extent of which I feel comfort in my body
32: 'I trust my body sensations'	Lacks context and timeframe	(P4) Trust for what? How to trust? To understand my environment? Or using my bodily sensation to make a decision? Or just about my capability to sense my body? I can't tell what the item 'I trust my body sensation' defines and it expects me to assess

643 the Japanese self as multiple, moving, situational, and changing, depending on
644 context and relations.
645 Furthermore, the concept of independent vs. interdependent self-construal may
646 primarily regard *public* expression and social and interpersonal relations, and has
647 been called into question regarding *private* experiences by other cultural psychol-
648 ogists (Hasegawa and Hirose 2005; Matsumoto 1999). This is relevant to our theme
649 of interoceptive awareness, a more "private affair," that may be less considerate of
650 the relational context. In fact, our participants pointed out that the MAIA items are

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quite personal for an average Japanese person. It is interesting that Rosenberger does not exclude the possibility of an inner realm of self that may be more immune from social relativity with its constitution and autonomy still under debate (Rosenberger 1992). Lebra suggests a layered conceptualization of the self and contrasts an interactional self, which is relative, multiple, and variable depending on social context and associated with the face, with an inner self, which is less relative, more stable and associated with the heart, *kokoro*, reminiscent of Winnicott's "true self" (Lebra 1992; Winnicott 1965).

Taking into consideration a broader perspective on the interaction of culture, developmental and socialization process, and relational contexts, our qualitative data shed light on the potential shortcomings of the Japanese adaptation of the MAIA. Our qualitative data from first-person accounts of participants' lived experience of two different cultures illustrate a complexity that was not incorporated into the present version of MAIA-J.

Interoceptive Awareness and Context Dependency

All MAIA questionnaire items are introduced by: "Please indicate how often each statement applies to you in general in daily life." To ask how a statement applies "in general" implies a certain level of consistency of one's behavior independent of context, by researchers commonly related to as a relatively stable trait. Our focus group participants, however, initially confused and consistently challenged the Western trained facilitators by stating that they were missing the context for each item, since their answers would certainly differ according to context. Describing one's behavior or attitude as "general" appears to point to the very heart of the problem with questionnaire adaptations to Japanese: "Thus, for Japanese, appropriate personal and social behavior is identified, not as a general set of behaviors that transcends situations but, rather, as a series of particular situations that generate a kaleidoscope of different, constantly shifting behaviors *that are nonetheless ordered and agreed upon*" (Bachnik 1992:7). One direction for future research may be exploring contextual differences between how Japanese individuals experience bodily awareness in contrast to how they might outwardly express it. The latter may be more directly influenced by socially constructed values.

How interoceptive bodily awareness is processed in different cultures and brought into public expression—or maybe not be openly expressed at all (Ikemi and Ikemi 1986)—is a complex topic that has undergone little research to date (Ma-Kellams 2014; Maister and Tsakiris 2014). Ma-Kellams showed that individual differences in the ability to ignore contextual cues mediated performance differences between Easterners and Westerners on heartbeat detection (Ma-Kellams, Blascovich, and McCall 2012), suggesting contextual dependency and external focus of attention to social cues may lower the attention to inner-body sensations and reduce interoceptive accuracy. This is consistent with Doi's notion of the establishment of "in-group" as part of one's self, thus, making it difficult to re-direct attention to a personal self as separate from the social context within which the self is embedded (Doi 1986). Such strong distinction between externally versus internally directed attention to the body is also reflected in the work of Japanese

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Table 3 Sample quotes for each theme

Theme/subtheme	Sample quotations
Language	
Translation-related themes	1. "the translation is like an abstract kind of like thinking" (P13)
	2. "there is no context in it. So it's not easy to translate it into Japanese" (P12)
	3. "I think if you want to use that format … you should just provide a context, and then that makes sense. But … without the context it's just confusing." (PF)
	4. "Japanese questionnaire, at the end, where it means in English, supposedly, is something wrong, it is more dramatic, it's like an accident or emergency …, which feels a little different from 'something is wrong in my life'" (PF)
	5. "a full Japanese translation for statement #31 contains a meaning of 'can' and 'be able to'. In English statement, there is no 'can' and 'be able to'." (P8)
Language-based differences	1. "when I am speaking in Japanese I'm kind of a different person than when I am speaking in English. I never swear in Japanese, but I swear a lot in English. So it's totally like a different person" (P2)
	2. "when I switch to Japanese, … I feel that my personality shifts …with languages, back and forth, my personality shifts too" (P9)
	3. "I'm a lot more polite in Japanese and more assertive in English." (P11)
	4. "Speaking in English is kind of casual" (P8)
	5. "my voice is higher when I speak in Japanese and lower in English" (P11)
	6. "I didn't use my hand when I am speaking Japanese, but I do that in English" (P2)
	7. "When I switch to Japanese … the first thing I think about–it's personal to me–what am I supposed to be behaving? Is he older or man or woman?" (P13)
	8. "The Japanese language doesn't have the–sort of–direct 'I' or subject. Whereas in English, the subject has to be very clear. In Japanese that can be kind of ambiguous." (P3)
	9. "I still have trouble with English in just particularly 'I' statements. And I always feel I'm talking about myself all the time." (P8)
	10. "Japanese language is macho or feminine; Hara is a men's word. But a woman says Onaka." (P14)
Cultural context of behavior	
Context dependency	1. "everyone has a specific role to play. In every occasion, every situation there is a right answer" (P13)
	2. "the interaction I see in Japanese, we need to know: is she older, the genders and everything, so we are kind of secretly searching [to read gender, age and hierarchy]" (MK)
	3. "Honne-Tatemae: two- faces. They use at this occasion this face, this occasion this face, very clear" (P14)

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Table 4 continued

Theme/subtheme	Sample quotations
Social expectations	1. "the one thing that you want to avoid back home is to stand out, you just want to blend in, I guess" (P8)
	2. "you have to be with everybody else's same style. That's the Japanese way, I guess. You have to be like equal, and you have to be like everybody else is. We were taught being like that at school, right?" (P5)
	3. "you have to be normal, you have to be strong and normal" (P9)
	4. "Japanese learning and system almost train you to be kind of attentive to someone else. And we say 'reading the air, Kuuki wo Yomu空気を読む.' So everyone is reading the air" (P2)
	5. "We automatically think what this person wants me to answer." (P2)
	6. "people try to … repress their body sensation, because it's troublesome, it causes trouble, not to the one that's having the issue, but to others" (P12)
	7. "you don't want to be the weak one, you don't want to … cause trouble to anybody else" (P11)
	8. "In Japan, when they are disciplining the child, it's like: 'don't do that because someone is going to laugh at you' or 'because you are going to be a bother to someone else.' You know, so it's always about thinking about the whole group" (P1)
	9. "[Gaman is] perseverance, a kind of Japanese virtue for self-sacrifice, for maintaining that harmony" (P8)
	10. "Gaman 我慢" …. it means to kind of suppress yourself, or to kind of hold yourself down." (P3)
	11. "So sometimes Gaman, or self-sacrifice for fitting in the context, is not good; but we are expected to ignore our body sensations as a way of self-sacrificing for collective virtue" (P4)
	12. "I read some diaries written by the karoshi people; they had all those physical symptoms, but they just don't talk about it, and they just keep going until they die" (P13)
Self-regulation	1. "Looking at Japanese children, I thought: God! That's so constraining! You know, but they are able to regulate their bodies, or they are able to be in a certain position for a lot longer than, say, American children" (P3)
	2. "maybe there's an impulse in the Japanese too, but before going with the impulse, continuously you check: 'Is this impulse okay to follow?'"(Seiji, our Japanese consultant)
	3. "We need to follow all kinds of rules… so you have to follow the external rule to get regulated" (P2)
	4. "I had [in Japan] pressure to control my body, not really knowing the sense of body awareness"(P13)

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Table 4 continued

Theme/subtheme	Sample quotations
Internal versus external orientation	1. "They're aware that you are always seen, there's an audience" (P8) 2. "I think Japanese culture is, well, it is consciousness, somebody looks at you, even when nobody is around" (P14) 3. "In middle school and elementary school, yes, it was just embarrassing to raise your hand or speak up, because … to reveal that you don't understand or are not following is considered disruptive and, you know, just shameful" (PF) 4. "[A taijinkyofusho] person doesn't want to go out, to go into the crowd, because he or she doesn't want to offend other people. They feel 'I might be smelly or I might be ugly'" (PF) 5. "[Suicide] is not just people being depressed, but it's actually kind of like a badge of honor, almost" (P16) 6. "we fantasize or we honor suicide" (P1) 7. "Attention is more awareness outside, and intention is thinking about your frame affecting your inside. And he, like my [meditation] teacher [in the US] told me … you need to notice your intention, and you need to be open to the attention of the outside world. But Japanese learning and system almost train you to be kind of attentive to someone else" (P2) 8. "so we learn things, even traditionally, observing other people, like crafts or Zen meditation and everything. It starts off from observing. And listening to learn, instead of talking or thinking. So that's the Japanese way of doing things, so we tend to be over-focused on attention part, as you say, but not on the intention part" (P4) 9. "the Japanese, actually, their attention will be outside more; and then, American people's attention goes inside" (Seiji)

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Table 4 continued

Theme/subtheme	Sample quotations
Emphasis on form	1. "you practice daily, rather than consciously thinking about it" (P1)
	2. "yeah, everybody do the same things and everybody wears their uniform, the same uniform, same hair style" (P5)
	3. "because a lot of Japanese—judo or a tea ceremony or Japanese dancing, everything got style" (P2)
	4. "sometimes we have to ignore our body sensations to prioritize the style" (P4) "meditation, you know, Zen, we do not talk about it. We just sit and being quiet" (P6)
	5. "you should copy what you see, and you don't need to … think about it, but in the end you feel it, and then you go and it ticks. But it's also taught that way to feel it and not to ask questions, but to try to change your position until you feel it" (P16)
	6. "when you learn the form first, and the aesthetics of how it looks, and get a sort of general grasp of it, it makes sense gradually, or it kind of catches up later on. And rather than verbally explaining it, I think a lot of Japanese nationals what they do is to sort of feel it out" (P8)
	7. "The American meditation style emphasizes and prioritizes one's experiences including bodily comfort or discomfort; and they can listen to or can be allowed to accept their body sensations, or being more kind to their body sensations and let themselves feel and prioritize their messages from the body, rather than being restricted by forms, following teachings or controlling the self … and ignoring their bodily messages" (P4)
Relationship to the body	
Personal space	1. "…when I hear the word 'body awareness' it's more about boundaries… So rather than my internal inner self, it's more about what's around me, and that is sort of a part of myself too" (P8) P8
	2. "how to respect other people's body [is by] keeping their personal comfort space" (P4)
	"with Japanese, or Japanese environment, or Japanese friends, I think the space is bigger maybe" (P9)
	3. "people can be a lot more friendlier when your body space is protected" (P9)
	4. "To hug for greeting is not common in Japan. And we don't hug each other in my family and probably not only in my family, most families don't hug each other. I did hug only a romantic partner as an expression of each other's romantic love" (P4)
	5. "I do hug, but a little stiff, my body is stiff" (P14)
	6. "we don't have a space [in the subway]… trying not to look at each other, [not to] look at the other person" (P9)

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Table 4 continued

Theme/subtheme	Sample quotations
Mind–body	1. "My perception of Japanese general culture is more mind-driven; the mind gives us a signal and then the body reacts" (P1)
	2. "[Mind and body] it's kind of separation but also connection. It's connected, so your mind is the driver of the body. So we are a car, the body is a car in a way" (PF)
	3. "病は気から yamai wa ki kara (literally: disease starts from the mind/spirit). So basically, we believe of a spirit can control your entire body. So if you've got a strong spirit you even don't get cold" (P1)
	4. "I think our understanding of meditation is more about the mind, and not so the body" (P1)
	5. "I got homesick and my appetite was not good" (P14)
	6. "why my stomach hurts, because I was nervous" (P13)
	7. "I get really stressed I feel that, how you say it, that I—my chest was pushed" (PF)
	8. "the body tells what's going on with them, not mouth, but body is presenting their issue" (P12)
	9. "self-care is left behind. How you feel does not really matter… emphasis [is] put on performance and productivity" (P8)

authors on the phenomenology of the body. Hiroshi Ichikawa, a Japanese philosopher, noted that the body phenomena have both orientational and intentional aspects. The orientational structure of body phenomena is the "aspect of the body not consciously directed towards the environment, such as heartbeat, habits, and learned skills. The intentional structure…consciously engages the environment" (Ozawa-de Silva 2002).

Related to the potential difference between private versus public expressions of interoceptive awareness, participants pointed out feeling some confusion around the term "body awareness" and its social context. Most of them understood the term from a self-objectifying perspective from the outside, such as whether others view them as clumsy or graceful, rather than through introspection or interoception. At least in public social settings, the individual's body appears to be primarily viewed from the outside through the eyes of others, which closely resembles Ichikawa's categorization of the body phenomena as "the body I perceive as my body perceived by the other". Ichikawa viewed this category of body phenomena as "one form of grasping the body through the mediation of others…a relational existence between the other and the self" (Ozawa-de Silva 2002).

External orientation may overlap with exteroceptive self-processing. Maister and Tsakiris compared the interaction between interoceptive and exteroceptive self-processing in East Asian and Western participants (Maister and Tsakiris 2014). Self-face observation improved heartbeat perception of those with initially low awareness only in Westerners but not in East Asians. The authors interpreted this

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that "for Western participants, viewing one's own face may activate a bodily self-awareness which enhances processing of other bodily information, such as interoceptive signals. Instead, for East Asian individuals, the external appearance of the self may activate higher-level, social aspects of self-identity, reflecting the importance of the sociocultural construct of 'face' in East Asian cultures" (Maister and Tsakiris 2014). Higher-order social constructs, in turn, relate to self-construal and general cultural differences. As such, ongoing allocation of attentional resources between socially oriented motivations (e.g. the need to "read the air") may compromise resource allocation for attending to one's own interoceptive state.

Interoceptive Awareness and Japanese Language

The daily Japanese language appears to use anatomical, somatic, visceral, or physiological terms more frequently to describe vague emotions rather than explicitly stating the exact felt emotion. Awareness of emotional processes may involve an almost 'unconscious' registration of somatic attributes and bodily functions. For example, Japanese are more likely to describe themselves in terms of physical attributes and appearances compared to US-Americans, which is in line with the Japanese 'emphasis on [physical or somatic] form' (Kanagawa 2001) and expressing emotions and mental health in a more 'culturally acceptable' way (Lipowski 1990). In our focus group discussions, it appeared that Japanese language (and identity) reflexively ties emotions and feelings—both positive and negative—to bodily sensations.

It is currently unclear whether awareness of bodily cues as being associated with emotions is related to the Japanese language, culture, or both, as language preference often correlate the most with level of acculturation. Future studies should investigate the association between Japanese language preference (in bicultural and bilingual individuals) and the MAIA Emotional Awareness scale. A study by Tsai, Simeonova, and Watanabe (2004) demonstrated that less acculturated Chinese Americans used more somatic and more social words compared to more acculturated Chinese Americans as well as European Americans when describing emotional events. The authors suggested that both culture and language shape how emotions are communicated, but even after controlling for language, culture still influenced the way emotions are expressed (Tsai, Simeonova, and Watanabe 2004). However, Tsai et al. did not explore how emotions are experienced and related to interoceptive awareness.

US-Americans appear to more frequently differentiate positive versus negative valence of emotions, whereas Japanese participants put less emphasis on valence or appraised emotional events as neutral (Kitayama, Markus, and Kurokawa 2000; Mesquita and Karasawa 2002). Being less inclined to verbally express emotions does not necessarily indicate a lack of emotional awareness. A trait to feel emotions more somatically may lead to less cognitive appraisal of an emotion's valence. It is possible that this paradoxically makes it more difficult to use interoceptive body awareness of sensory cues for the cognitive recognition of emotions and feelings, when this process implies an active distinction or differentiation of cognitive processes from feelings and bodily sensations. The original MAIA assumes a

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Western premise that bodily sensations, feelings, and emotions are separable constructs, which potentially makes it easier to itemize them in the US-American culture. In the Japanese language and culture, emotion and body awareness may represent a non-separable continuum, which may be reflected in the concept of alexisomia. In analogy to alexithymia (the difficulty describing emotions), alexisomia defines a trait of having no words for somatic sensations (Kanbara and Fukunaga 2016). This phenomenon, interestingly, exists only in the Japanese psychology literature.

Interoceptive Awareness and Self-regulation in the Japanese Culture

In Japanese culture, self-regulation serves the purpose of appropriately shifting between conforming to social expectations and spontaneous self-expression (Bachnik 1992), rather than achieving an individual sense of homeostasis. Self-regulation in Japan appears to take on the connotation of self-control–of aligning one's physical or emotional interoceptive experience with the perceived situational expectations or needs of the group. Rather than being used for personal gain by serving a self-comforting purpose, it may be used for the collective purpose of enduring (*gaman* 我慢) and suppressing personal discomfort in order to avoid being an inconvenience to others. This is in line with Japanese early school education aiming at entraining *kejime*, the ability to shift behavior between formal and informal, between restraint of self-expression and spontaneity according to changing situations (Bachnik 1992). Japanese culture views the capacity for successful shifting as essential for the maturation of the sense of self (Bachnik 1992).

The likely dominant ideal in both cultures (Japanese and US-American) is that people should be able to use their mind to exert top-down control over emotional expression. Even though most of our participants have had at least some experiences in mind–body modalities, they endorsed this ideal based on their experiences. This creates a potentially rigid top-down prediction about the expected or desired interoceptive experience. According to the predictive coding model of interoception (Farb et al. 2015), the preferred mode of any self-regulation would aim at reducing an uncomfortable mismatch between predictions (or prior expectations) and bottom-up interoceptive stimuli. This would put preferential weight on expectation and ignore bottom-up influences rather than update inferences based on precise bottom-up interoception, e.g. as fostered by mind–body approaches or contemplative practices for which the MAIA was developed. The fact that participants in the focus groups as well as in the validation study had not been introduced to these divergent modes of self-reference (Farb et al. 2007) and self-regulation (Farb et al. 2015) may further explain the confusion of our participants regarding the Self-Regulation items. With only one exception, our focus group participants did not have the experience of a dedicated regularly meditation practice. For example, self-regulation via bottom-up inferences is emphasized in traditional Zen practice: "The power to control the activity of our mind comes from the body, and it depends critically…on posture and breathing" (Sekida 1975:31).

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The Self-Regulation scale in the original MAIA was intended to capture potential changes associated with health benefits from contemplative practices and mind–body approaches, and it has been shown to do so (Mehling 2016). Its items were developed from a Western perspective of serving the goal of personal homeostasis and psychological health, supporting a sense of autonomy that uses an internal focus on, e.g., breath awareness and interoception of other bodily sensations. For example, with MAIA item 23 of the Self-Regulation scale, the implication is that when someone is overwhelmed, they can focus inside and find a calm place within themselves. 'A calm place inside' did not resonate with our participants' experience as something felt inside the body.

In the context of a culture that emphasizes an interdependent self-construal, the concept of self-regulation is understood very differently from the Western perspective. Whereas for individuals of Western culture self-regulation may primarily serve emotional and physiological homeostasis, it may primarily serve social attunement and fitting into a social group in Japan. There are many instances where self-regulation serves both individual and collective or social needs in both cultures. However, attention to and awareness of interoceptive physical cues, viewed as a key element of personal homeostatic self-regulation in the West (Farb and Mehling 2016; Khalsa et al. 2018; Mehling 2016), appear to be less appreciated as a means for self-regulation in Japanese culture. As the cultural conditions under which self-regulation is fostered or hampered by rules and social obligations define the respective meaning given to autonomy and relatedness (Trommsdorff 2009), and as self-regulation can use divergent modes for reducing prediction errors (Farb et al. 2015), our participants had difficulties in answering Self-Regulation items. This may explain the loss of this scale in the factor analysis of the MAIA-J (Shoji et al. 2018).

Future Directions for MAIA Cultural Adaptation Refinement

Our focus group participants added additional insight into the relationship between the individual's self-construct, socio-cultural orientation, and interoceptive awareness, highlighting both similarities and differences between Japanese and US-American cultures—expected and unexpected. Responses for MAIA and MAIA-J were similar but appeared to show lower levels of interoceptive awareness compared to a mostly North American sample of individuals with some experience of mind–body practice. As is generally the case with any translation and cultural adaptation of a questionnaire, we found that the language itself presents challenges, and that an improved Japanese translation of the MAIA may be warranted. The participants noted the "stiffness" of the translation in adhering to the literal words. They suggested that this may be due in part to the use of male translators. Regardless, the language was difficult for our participants, most of whom were women.

The lack of a more explicit context for the questions may be a particular challenge for people with a context-dependent culture. Although the general instructions for the MAIA are, "how often each statement applies to you generally in daily life," for statements such as, "I notice where in my body I am comfortable,"

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participants were uncertain whether they were asked about their current state or their trait, and in which situational context. A cultural adaptation of the MAIA will have to improve item clarity by adding more context related to time, place, and situation (Darnell 2000).

The participants found it difficult to answer "so many I-statements" in the MAIA and commented on the general irrelevance of paying any attention to one's own bodily sensations in the Japanese culture. A questionnaire's reliance on I-statements reflects a Western individualistic cultural-specific view of the world that may not speak to other cultures and languages. This may be further explored through cultural adaptations beyond Japanese.

In a future study, similar focus groups should be conducted in Japanese by Japanese moderators in Japan. A further validation of a modified Japanese translation of the MAIA should be conducted in a more representative population sample. Furthermore, similar studies in other Asian cultures could illuminate whether Japanese culture has unique features among Asian cultures.

Limitations

Inferences from our small focus groups are necessarily limited. The nature of our focus groups presented strengths and limitations. Because our participants have experience in both cultures, one might argue that their acculturation to the individualistic ethos of the US could confound their responses to and interpretations of the MAIA questionnaire. We argue that their bicultural identities allowed them to have a unique perspective that comes with integration and separation from a cultural milieu. It is known that two well-developed individualistic and collectivist self-identities are able to co-exist in individuals, and that these individuals have the ability to modify behavior according to the cultural context of interest (Singelis 1994). Our participants' bicultural backgrounds provided well-informed perspectives in both cultures. However, in order to definitely state that the findings would potentially generalize to Japanese people living in Japan, similar focus groups would need to be conducted in Japan.

The overwhelming majority of focus group participants were female. This could be a potential limitation to the generalizability of our findings. Although we made our best attempt to facilitate the focus groups as neutral observers, we inevitably brought in our biases and perspectives in our words and responses to participants. We also acknowledge the cultural dynamics of having two white European-American male facilitators who were not familiar with the Japanese culture, and the ways that this may have impacted the study through implicit biases based on Western values and concepts.

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Conclusions

The present study, prompted by the recent validation study of the Japanese translation of the MAIA (Shoji et al. 2018), was undertaken to explore potential socio-cultural influences on interoceptive bodily awareness experienced by individuals familiar with both US and Japanese cultures. The qualitative data from our Japanese-American focus group discussions compared cultural contexts of behavior and mind–body relationships between cultures.

Our findings will inform the next phase of improving the MAIA's translation and cross-cultural adaptation. In a highly context-dependent culture like Japan, future versions of MAIA-J may need to specify the contexts of items in question, such as the time, situation, and whether it is referring to private or public expressions of body awareness. A next step would be to conduct similar focus groups in Japan with non-English speaking Japanese participants to compare findings with our bilingual and bicultural Japanese-American sample. Studying interoceptive awareness in different Japanese age groups may show whether and how increasing exposure to Western ideals of self-construal may change the culture within Japan and affect interoceptive awareness.

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Data Availability Dataset is uploaded at https://doi.org/10.7272/Q6XG9PCW.

Compliance with Ethical Standards

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent: Informed consent was obtained from all individual participants included in the study.

References

Bachnik, J.M.
1992 The Two "Faces" of Self and Society in Japan. Ethos (by Wiley, American Anthropological Association), 20(1): 3–32. Retrieved from https://jstor.org/stable/640449.
Benet-Martínez, V., J. Leu, F. Lee, and M. Morris
2001 Negotiating Biculturalism: Cultural Frame-Switching in Biculturals with Oppositional vs. Compatible Cultural Identities. Journal of Cross-Cultural Psychology 33:492–516.
Bodiford, W.M.
1992 Zen in the Art of Funerals: Ritial Salvation in Japanese Buddhism. History of Religion 32 (2):146–164.
Bornemann, B., B.M. Herbert, W.E. Mehling, and T. Singer
2014 Differential Changes in Self-reported Aspects of Interoceptive Awareness Through 3 Months of Contemplative Training. Frontiers in Psychology 5:1504. https://doi.org/10.3389/fpsyg.2014.01504.

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Charmaz, K.
2006 Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis. Thousand Oaks, CA: SAGE Open Med.

Craig, A.D.
2002 How Do You Feel? Interoception: The Sense of the Physiological Condition of the Body. Nature Reviews Neuroscience 3(8):655–666. https://doi.org/10.1038/nrn894.
2003 Interoception: The Sense of the Physiological Condition of the Body. Current Opinion in Neurobiology, 13(4): 500–505. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12965300.

Darnell, R.
2000 Translation. Journal of Linguistic Anthropology, 9(1-2): 251–254. Retrieved from https://doi.org/10.1525/jlin.1999.9.1-2.251.

Dedoose.
2018 Web Application for Managing, Analyzing, and Presenting Qualitative and Mixed Method Research Data. *Los Angeles, CA: SocioCultural Research Consultants, LLC* www.dedoose.com, *Version 8.0.35*.

Desbordes, G.
2016 On the Relationship Between Mindfulness and Buddhism (Hint: It's Complicated) [Review of the Book Buddhist Foundations of Mindfulness, by Edo Shonin, William Van Gordon, and Nirbhay Singh]. PsycCRITIQUES 61(23). *PsycCRITIQUES, 61*(23). https://doi.org/10.1037/a0040339.

Doi, T.
1977 The Anatomy of Dependence. Tokyo: Kodansha.
1986 The Anatomy of Self. Tokyo: Kodansha.

Durlik, C., G. Brown, and M. Tsakiris
2014 Enhanced Interoceptive Awareness During Anticipation of Public Speaking is Associated with Fear of Negative Evaluation. Cognition and Emotion 28(3):530–540. https://doi.org/10.1080/02699931.2013.832654.

Farb, N.A., J. Daubenmier, C.J. Price, T. Gard, C. Kerr, B.D. Dunn, and W.E. Mehling
2015 Interoception, Contemplative Practice, and Health. Frontiers in Psychology 6:763. https://doi.org/10.3389/fpsyg.2015.00763.

Farb, N.A., and W.E. Mehling
2016 Editorial: Interoception, Contemplative Practice, and Health. Frontiers in Psychology 7:1898. https://doi.org/10.3389/fpsyg.2016.01898.

Farb, N.A., Z.V. Segal, H. Mayberg, J. Bean, D. McKeon, Z. Fatima, and A.K. Anderson
2007 Attending to the Present: Mindfulness Meditation Reveals Distinct Neural Modes of Self-reference. Social Cognitive and Affective Neuroscience 2(4):313–322. https://doi.org/10.1093/scan/nsm030.

Fujino, H.
2019 Further Validation of the Japanese Version of the Multidimensional Assessment of Interoceptive Awareness. BMC Research Notes 12(1):530. https://doi.org/10.1186/s13104-019-4556-x.

Guba, E.G., and Y.S. Lincoln
1994 Competing Paradigms in Qualitative Research. *In* Handbook of Qualitative Research. N.K. Denzin and Y.S. Lincoln, eds., pp. 105–117. London: Sage.

Hasegawa, Y., and Y. Hirose
2005 What the Japanese Language Tells Us about the Alleged Japanese Relational Self. Australian Journal of Linguistics 25(2):219–251.

Hiroaki, K.
2011 ACT from Mindfulness: Self-discovering Project in the 21st Century (マインドフルネス、そしてACT へ:二十一世紀の自分探しプロジェクト). Tokyo: Seiwa Shoten Publishers.

Ikemi, Y., and A. Ikemi
1986 An Oriental Point of View in Psychosomatic Medicine. Psychotherapy and Psychosomatics 45 (3):118–126. https://doi.org/10.1159/000287937.

Kabat-Zinn, J.
2013 Full Catastrophe Living (Revised Edition): Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness. Bantam Books/Random House New York.

Kanagawa, C.
2001 "Who am I?" The Cultural Psychology of the Conceptual Self. Personality and Social Psychology Bulletin, 27(90-103).

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Kanbara, K., and Fukunaga, M. 2016 Links Among Emotional Awareness, Somatic Awareness and Autonomic Homeostatic Processing. *BioPsychoSocial Medicine, 10*(16). https://doi.org/10.1186/s13030-016-0059-3.

Kashima, A., T. Yamashita, A. Okamoto, Y. Nagoshi, Y. Wada, T. Tadai, and K. Fukui
2003 Japanese Version of the Body Attitude Test: Its Reliability and Validity. Psychiatry and Clinical Neurosciences 57(5):511–516. https://doi.org/10.1046/j.1440-1819.2003.01156.x.

Khalsa, S.S., R. Adolphs, O.G. Cameron, H.D. Critchley, P.W. Davenport, J.S. Feinstein and Interoception Summit
2018 Interoception and Mental Health: A Roadmap. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging 3(6):501–513. https://doi.org/10.1016/j.bpsc.2017.12.004.

King, C.
2000 Japanese body and self. Sociological Sites/Sights, TASA 2000 Conference, Adelaide: Flinders University, Dec 6-*8, (downloaded May 2020)*. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.194.5919&rep=rep1&type=pdf.

Kirmayer, L.J.
2015 Mindfulness in Cultural Context. Transcultural Psychiatry 52(4):447–469. https://doi.org/10.1177/1363461515598949.

Kitayama, S., H.R. Markus, and M. Kurokawa
2000 Culture, Emotion, and Well-being: Good Feelings in Japan and the United States. Cognition and Emotion 14(1):93–124.

Krueger, R., and M.A. Casey
2000 Focus Groups: A Practical Guide for Applied Research. 3rd Edition. Thousan Oaks, CA: Sage.

Lebra, T.S.
1992 Self in Japanese Culture. in Rosenberger, N. R. edit. (1992) Japanese Sense of Self. *Cambridge University Press, Cambridge, UK*.

Leonard, V.W.
1989 A Heideggerian Phenomenologi Perspective on the Concept of the Person. ANS Advances in Nursing Science 11:40–55.

Lin, F.L., C.C. Hsu, W. Mehling, and M.L. Yeh
2017 Translation and Psychometric Testing of the Chinese Version of the Multidimensional Assessment of Interoceptive Awareness. Journal of Nursing Research 25(1):76–84. https://doi.org/10.1097/jnr.0000000000000182.

Lincoln, Y.S., and E.G. Guba
1985 Naturalistic Inquiry. Beverly Hills, CA: Sage Publications Inc..

Lipowski, Z.J.
1990 Somatization and Depression. Psychosomatics 31(1):13–21. https://doi.org/10.1016/S0033-3182(90)72212-8.

Ma-Kellams, C.
2014 Cross-cultural Differences in Somatic Awareness and Interoceptive Accuracy: A Review of the Literature and Directions for Future Research. Frontiers in Psychology 5:1379. https://doi.org/10.3389/fpsyg.2014.01379.

Ma-Kellams, C., J. Blascovich, and C. McCall
2012 Culture and the Body: East-West Differences in Visceral Perception. Journal of Personality and Social Psychology 102(4):718–728. https://doi.org/10.1037/a0027010.

Maister, L., and M. Tsakiris
2014 My Face, My Heart: Cultural Differences in Integrated Bodily Self-awareness. Cognitive Neuroscience 5(1):10–16. https://doi.org/10.1080/17588928.2013.808613.

Markus, H., and S. Kitayama
1991 Culture and the Self: Implications for Cognition, Emotions, and Motivation. Psychological Review 98:224–253.

Markus, H.R., and S. Kitayama
1991 Culture and the Self: Implications for Cognition, Emotion, and Motivation. Psychological Review 98(2):224–253.

Matsumoto, D.
1999 Culture and Self: An Empirical Assessment of Markus and Kitayama's Theory of Independent and Interdependent Self-construals. Asian Journal of Social Psychology 2:289–310.

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MS Code : MEDI-D-19-00123R2 | CP | DISK

Mehling, W.E.
2016 Differentiating Attention Styles and Regulatory Aspects of Self-reported Interoceptive Sensibility. Philosophical Transactions of the Royal Society of London B: Biological Science, 371(1708). https://doi.org/10.1098/rstb.2016.0013
Mehling, W.E., V. Gopisetty, J. Daubenmier, C.J. Price, F.M. Hecht, and A. Stewart
2009 Body Awareness: Construct and Self-report Measures. PLoS ONE 4(5):e5614. https://doi.org/10.1371/journal.pone.0005614.
Mehling, W.E., C. Price, J.J. Daubenmier, M. Acree, E. Bartmess, and A. Stewart
2012 The Multidimensional Assessment of Interoceptive Awareness (MAIA). PLoS ONE 7(11): e48230. https://doi.org/10.1371/journal.pone.0048230.
Mesquita, B., and M. Karasawa
2002 Different Emotional Lives. Corgnition and Emotion 16(1):127–141.
Noguchi, H.
2004 The Idea of the Body in Japanese Culture and Its Dismantlment. International Journal of Sport and Health Science 2:8–24.
Ozawa-de Silva, C.
2002 Beyond the Body/Mind? Japanese Contemporary Thinkers on Alternative Sociologies of the Body. Body & Society 8(2):21–38.
Park, S.-I., Sung, S.-Y., and Misan, V.
2016a. A Mixed-Methods Study of the Psychological Process of Loving-Kindness Meditation and its Effects on Heart-Smile Meditation Participants. Korean Psychological Association Journal: Counseling and Psychotherapy, 28(2).
2016b. A Qualitative Research on Experience of Heart Smile Meditation. Bulgyohang-nyeongu (The Research of Buddhist Studies), 47.
Rosenberger, N.R.
1992 Japanese Sense of Self. Cambridge, UK: Cambridge University Press.
Sekida, K.
1975 Zen Training; Methods and Philosophy. *Weatherhill, New York, edited by A.V.Grimstone.*
Shoji, M., W.E. Mehling, M. Hautzinger, and B.M. Herbert
2018 Investigating Multidimensional Interoceptive Awareness in a Japanese Population: Validation of the Japanese MAIA-J. Frontiers in Psychology 9:1855. https://doi.org/10.3389/fpsyg.2018.01855.
Singelis, T.M.
1994 The Measurement of Independent and Interdependent Self-Construals. Personality and Social Psychology Bulletin 20(5):580–591.
Singelis, T.M., & Brown, W.J.
1995 Culture, Self, and Collectivist Communication: Linking Culture to Individual Behavior. Human Communication Research, 21(3), 354-389. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12349710
Singelis, T.M., R.I. Garcia, J.C. Barker, and R.E. Davis
2018 An Experimental Test of the Two-Dimensional Theory of Cultural Sensitivity in Health Communication. Journal of Health Communication 23(4):321–328. https://doi.org/10.1080/10810730.2018.1443526.
Trommsdorff, G.
2009 Culture and Development of Self-regulation. Social and Personality Psychology Compass 3 (5):6870701.
Tsai, J.L., D.I. Simeonova, and J.T. Watanabe
2004 Somatic and Social: Chinese Americans Talk About emotion. Personality and Social Psychology Bulletin 30(9):1226–1238. https://doi.org/10.1177/0146167204264014.
Tsai, J.L., Y. Ying, and P.A. Lee
2000 The Meaning of "Being Chinese" and "Being American": Variation Among Chinese American Young adults. Journal of Cross-Cultural Psychology 31(3):302–322.
website, M. (accessed 5/2020). MAIA website: https://osher.ucsf.edu/maia/.
Winnicott, D.W.
1965 Ego Distortion in Terms of True and False Self (1960). *In* Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis, pp. 140–152. New York: International UP Inc..

Journal : Small-ext 11013 | Dispatch : 23-7-2020 | Pages : 34
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Yamada, A., and Singelis, T.M.
1999 Biculturalism and Self-Construal. 1999;23(5): 697–709. *International Journal of Intercultural Relations, 23*(5): 697–709.
Yamashita, R.
2018 Ryodo Yamashita. How Mindfulness x [Multipled by] Zen Can Rid Your Idle Thoughts (「マインドフルネスx(かける)□」であなたの□念はすっきり消える). *Tokyo: Shuei-sha*.

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