English translation and validation of the Ikigai-9 in a UK Sample: A brief report

Dean Fido[1*], Yasuhiro Kotera[1], & Kenichi Asano[2]

[1] University of Derby Online Learning, University of Derby (UK)

[2] Department of Psychological Counseling, Faculty of Human Sciences, Mejiro University, Tokyo (Japan)

Correspondence concerning this article should be addressed to Dr. Dean Fido, University of Derby Online Learning, University of Derby, Enterprise Centre, Bridge Street, Derby, DE1 3LD, UK.

Tel.: +44 (1332) 597861. Email: deanfido.psych@gmail.com

Abstract

In Japanese culture, the psychological construct of '*ikigai*' reflects the sense of having a 'reason for living' and has been associated with positive health-related outcomes such as increased mortality. This study presents an English translation of the Ikigai-9, and for the first time, empirically explores the manifestation of ikigai in a Western population as well as its associations with facets of well-being. Three hundred and forty-nine participants from the United Kingdom self-reported levels of ikigai as well as state measures of mental well-being, depression, anxiety, and stress. Confirmatory factor analysis did not support the original three-factor model, favouring instead a single-factor solution. Results indicated that when controlling for effects of sex and age, ikigai predicted greater scores of mental well-being and lower scores of depression, but not anxiety or stress. The Ikigai-9 has high internal reliability and presents a logistically-convenient measure of ikigai for English-speaking populations. However, further validation (e.g., test-retest reliability) as well as a better understanding of the potential protective role of ikigai in mental health is required. Data, transparency files, and supplementary materials are available here: [shorturl.at/kIP27], and a pre-print is available here: [to be inserted].

Key words: ikigai; scale development; well-being; depression; anxiety, stress

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1. Introduction

In Japanese culture, the term '*ikigai*' refers to having 'purpose in life' or a 'reason for living' (Mathews, 1996; Mori et al., 2017; Park, 2015). Although other translations exist, such as those pertaining to the processes of 'realising' or 'gaining joy from' such purpose (Toshirō, Skrzypczak, & Snowden, 2003), scholars maintain that ikigai should be considered a composite construct; encompassing meaning, motivations, and values in life (Kumano, 2012; Weiss, Bass, Heimovitz, & Oka, 2005).

Recently, there has been a significant increase in the exploration of ikigai across areas of positive-psychology and preventative-medicine (Buettner, 2017; García & Miralles, 2017), with ikigai being considered a key predictor of physical and psychological well-being (Mori et al., 2017; Weiss et al., 2005). At a cross-sectional level, having ikigai has been positively associated with self-reported physical health in the elderly (Murata, Kondo, Tamakoshi, Yatsuya, & Toyoshima, 2006) and negatively associated with psychological burden in their carers (Okamoto & Harasawa, 2009). Moreover, the presence of ikigai has been consistently shown to benefit facets of well-being and mortality across multiple, large-scale longitudinal studies. Specifically, the presence of ikigai has been significantly associated with reduced incidence of cardiovascular disease and stroke (Koizumi, Ito, Kaneko, & Motohashi, 2008 [13.3-year follow-up]; Tanno et al., 2009 [5-year follow-up]; Sone et al., 2008 [7-year follow-up]), functional disability after controlling for symptoms of depression (Mori et al., 2017 [12-year follow-up]), and other causes of mortality such as injury, lesions, and suicide (Tanno et al., 2009). Regarding mortality as a consequence of cancer, converging evidence suggests an absence of any association with ikigai after long-term follow-up (Sone et al.,

2008; Tanno et al., 2009), however one study did identify an inverse relationship between ikigai and breast cancer, more specifically, elsewhere (Wakai et al., 2007). Importantly, the precise mechanism underpinning the benefit of ikigai on well-being remains unknown.

One key limitation of this literature, however, is the categorical nature by which ikigai is measured (Okamoto & Harasawa, 2009; Murata et al., 2006; Sone et al., 2008; Tanno et al., 2009). If we are to believe the complex and multifaceted conceptualisation of ikigai (Mathews, 1996), then simply confirming or rejecting a static state of ikigai neither seems appropriate nor useful in terms of exploring ikigai as a psychological construct. The Ikigai-9 (Imai, Osada, & Nishi, 2012) is a psychometric tool published and validated only in Japanese, that has been proposed as a means of measuring ikigai across the dimensions of [1] optimistic and positive emotions toward life, [2] active and positive attitudes towards one's future, and [3] acknowledgment of the meaning of one's existence. Although other measures of ikigai exist, these are either limited in terms of their narrow response options, leading to reduced variance in data (Kondo & Kamada, 2003), or are heavily orientated towards the enjoyment of leisure pursuits and free time, and so not fully encapsulating the most common definitions of the experience of ikigai (Kono, Walker, Ito, & Hagi, 2019).

Although the potential importance of ikigai appears to be pervasive across core health and well-being outcomes, current empirical literature is restricted to middle-aged or elderly Japanese samples, with no indication as to the manifestations or correlates of ikigai in Western populations. Commentaries of the potential importance of ikigai have begun to reach the United Kingdom (UK) through conceptual books (García, Miralles, & Cleary, 2017; Matthews, 1996) and written media (Barr, 2018; Ough, 2017), however there currently exists no published empirical research exploring the presence of ikigai in Western populations. In

part, this is likely a result of the absence of an English-language tool enabling such research. As such, the aim of this study was to translate the Ikigai-9 into English and subsequently validate it within a population derived from the UK. Further, we sought to delineate baseline associations between ikigai and aspects of mental health; hypothesising a positive association with well-being, and negative associations with measures of depression, anxiety, and stress.

2. Methods

2.1. Participants and procedure

In line with guidelines for individual differences researchers (Gignac, & Szodoraim 2016), an a priori power analysis ($f^2 = .03$, $\alpha = .05$) determined around 368 participants were required to have 80% power in the planned analyses (G*Power, v3.1). Three hundred and forty-nine participants ($M_{age} = 34.68$ years, $SD = 12.01$ years; $RNG_{age} = 18\text{-}72$ years; 50.7% female), all originating from the UK, completed an online questionnaire advertised through *Prolific*; a crowdsourcing website whose data quality is considered comparable to that obtained via face-to-face means (Peer, Brandimarte, Samat, & Acquisti, 2017). On average, the study took around 10 minutes to complete, and participants provided written informed consent in accordance with approved central university research protocols by ticking a box on both the first and last pages of the survey. All completers were reimbursed with £0.85 for their participation.

2.2. Materials

The *Ikigai-9* (Imai et al., 2012) consists of nine items measuring one's reason for being through dimensions of emotions towards one's life, attitudes towards one's future, and the acknowledgement of one's existence. The Ikigai-9 was translated from Japanese into English by KA, before being back-translated by YK. Both KA and YK are bilingual, and any discrepancies in translation were resolved through discussion. Participants are asked to rate

whether each statement applies to them on a five-point scale (1 = *Does not apply to me*, 5 = *Applies to me a lot*).

The *Short Warwick-Edinburgh Mental Well-being Scale* (SWEMWBS; Stewart-Brown et al., 2009) consists of seven items measuring recent (i.e., past two weeks) psychological functioning and emotional and mental wellbeing. Participants are asked to rate their experience of each statement on a five-point scale (1 = *None of the time,* 5 = *All of the time*).

The *Depression Anxiety Stress Scales* (DASS-21; Lovibond & Lovibond, 1995) consists of 21 items reflecting recent (i.e., past week) tendency to feel depression, anxiety, and stress. Participants are asked to rate their experience of each statement on a four-point scale (0 = *Never,* 3 = *Almost Always*).

3. Results

3.1. Construct validity of the Ikigai-9

A confirmatory factor analysis of the three-factor solution of the Ikigai-9 showed that the data did not fit the model outlined in Imai et al. (2012): $\chi^2(24) = 186.73$, $p < .001$, RMSEA = .14, CFI = .91, TLI = .87 (cut off values provided by Hu & Bentler, 1999; see Supplementary Data). As such, we computed a principal axis factor analysis with varimax rotation on all nine items. Bartlett's test of sphericity was significant, $p < .001$, and the Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .88, with all KMO values for individual items greater than .80; well above the acceptable limit of .50. Convergence of the scree plot and eigenvalues over Kaiser's criterion of 1, suggested a single factor structure explaining 56.10% of the variance. This single factor model was used for subsequent analyses. Table 1 shows the factor loadings after rotation.

Table 1. Exploratory factor analysis of the Ikigai-9 ($n = 349$)

	Factor 1
9. I believe that I have some impact on someone.	.84
7. My life is mentally rich and fulfilled.	.78
5. I am interested in many things.	.76
3. I feel that I am contributing to someone or the society.	.75
8. I would like to develop myself.	.73
1. I often feel that I am happy.	.73
6. I think that my existence is needed by something or someone.	.71
2. I would like to learn something new or start something.	.69
4. I have room in my mind.	.46
Eigenvalues	5.05
% of variance	56.10
α	.90

3.2. Sex differences in questionnaire measures

Independent *t*-tests were used to delineate sex differences within our sample; means and standard deviations for questionnaire data are reported in Table 2. On average, males were older, $t(347) = 2.83$, $p = .01$, $d = .30$, and reported greater levels of depression $t(347) = 4.66$, $p < .001$, $d = .50$, than female participants. There were no significant differences in scores on measures of ikigai, well-being, anxiety, or stress.

Table 2. Descriptive statistics for questionnaire scores with between sex comparisons.

	α	Total M (SD)	Males ($n = 172$) M (SD)	Females ($n = 177$) M (SD)	*p*
Age	-	34.68 (12.01)	36.51 (12.01)	32.90 (11.70)	**.01**
Ikigai	.90	32.87 (7.91)	32.38 (7.40)	33.33 (8.37)	.26
Well-being	.88	22.79 (5.12)	22.24 (5.45)	23.32 (4.73)	.05
Depression	.93	25.72 (11.19)	28.02 (11.51)	22.60 (10.21)	**< .001**

Anxiety	.86	22.10 (9.11)	23.07 (8.59)	21.16 (9.51)	.05
Stress	.88	27.49 (9.67)	27.65 (9.39)	27.33 (10.00)	.76

Note. Significant differences highlighted in **bold**.

3.3. Concurrent validity: prediction of well-being, depression, anxiety, and stress

Although not correlated with measures of anxiety or stress, scores on ikigai correlated positively with well-being and negatively with depression. Scores on depression, anxiety, and stress were all positively correlated with one another and negatively correlated with well-being (see Table 3). Next, we conducted four hierarchical multiple regression analyses. In each analysis, age and sex (0 = male, 1 = female) were entered at step one, and ikigai was entered at step two. The dependant variables were scores on well-being, depression, anxiety, and stress. All models met the assumptions required for hierarchical multiple regression analysis.

In step 1, sex and age positively contributed to the prediction of well-being, and negatively contributed to the prediction of depression and anxiety. Only age significantly (negatively) contributed to the prediction of stress. In addition to these findings holding at step 2, introducing scores on ikigai explained an additional 15% of variation in well-being (positive association) and 2% of variation in depression (negative association). There were no significant increases in the explained variances of anxiety or stress (see Table 3).

[Table 3 around here – currently at the end of document]

4. Discussion

The notion of having ikigai – a "reason for living" (Mathews, 1996) – has been associated with a series of health-related outcomes including the absence of psychological burden and decreased mortality rates. Findings are consistent and often derived from large-scale

longitudinal research; however, current literature is restricted to Japanese samples with no psychometric tools available to empirically test or understand ikigai in English-speaking cohorts. For that reason, this study aimed to translate, and subsequently validate, the Ikigai-9 in an English-speaking sample derived from the UK.

Confirmatory factor analysis of the English version of the Ikigai-9 did not support the three-dimensional structure originally proposed in Imai et al. (2012). Instead of comprising the facets of optimistic and positive emotions toward life, positive attitudes towards one's future, and acknowledgment of the meaning of one's existence, data reported in this study favoured a single factor solution of ikigai, which explained 56.10% of the variance with high internal consistency (α = .90). As such, it appears that although ikigai might be described through overlapping notions of motivations and values pertaining to life (Kumano, 2012; Weiss, Bass, Heimovitz, & Oka, 2005), such facets cannot be teased apart in a meaningful way, at least in this first cohort to complete the English version of the Ikigai-9.

Analyses of concurrent validity in this study outlined associations between self-reported ikigai and indices of psychological health including greater mental well-being and lower state depression. Such findings, in addition to the strong psychometric properties of the English version of the Ikigai-9, lend support for the usefulness of this measure in subsequent exploration of the potential protective benefits of ikigai; unrestricted to the Japanese population. This is important due to the global prevalence of depression thought to impact the lives of more than 300 million people worldwide; contributing to higher incidence of suicide as well as wider financial and resource implications for health care professionals (World Health Organization, 2018). Japanese suicide prevention policies aim to enhance ikigai in people to reduce the number of suicides (Ministry of Health and Labour Welfare, 2017). Suicide has previously been negatively associated with the presence of ikigai (Tanno et al.,

2009), however it remains unknown whether this association might be mediated in part through depression. Important to note, is the admittedly small but significant effect size of the contribution of ikigai to the depression model. Moreover, although not explicitly explored here, ikigai is consistently associated with reduced risk of cardiovascular disease in Japanese samples (Koizumi et al., 2008; Tanno et al., 2009; Sone et al., 2008). Owing to the UK's National Health Service (2019) identifying cardiovascular disease as a clinical priority over the next 10 years of health care provisions – with the aim of preventing 150,000 heart attacks - the ability to test the prospective protective effect of ikigai in the UK is a timely resource.

Interestingly, what were not identified were any associations between ikigai and self-report measures of anxiety or stress. Such associations have not previously been explored (or at least, published) in Japanese cohorts, which might indicate that ikigai plays little-to-no roll in anxiety or stress. However, as psychometric measures reported in this investigation were state measures, it is possible that ikigai might play a protective role whereby feelings of anxiety, stress, and indeed depression are attenuated when individuals are faced with situations that would normally evoke such states. In addition to experimental research being required to test these hypotheses, understanding is needed as to the mechanism by which ikigai might underpin health-related benefits. For example, Tanno et al. (2009) hypothesised that ikigai may be associated with positive health-related behaviours (e.g., reduced smoking and drinking) and psychosocial factors (e.g., living with a spouse and having a fulfilling job).

Results are discussed in light of some limitations. First, this is a cross-sectional study of a UK general population and so we can neither make any direct comparisons between the experience of ikigai in Eastern or Western civilisations, nor infer causation from the correlations presented, while noting that our scores were similar to 428 Japanese people (33.1±5.4 years for 128 males, 33.4±5.4 years for 300 females, and 33.3±5.3 years in total;

Imai et al., 2012). Second, this is the first time the English version of the Ikigai-9 has been tested, and so to compound and further validate our understanding of associations outlined above, further pre-registered replications are essential. Third, the ikigai measure was only administered at a single time-point, and so we are not able to state that this measure is stable across time.

In conclusion, the translation and validation of the Ikigai-9 reported here provides an initial step in aiding our understanding of the manifestation and associated mental health-related correlates throughout the West. Importantly, future research should seek to replicate this data inside and outside of the UK, as well as establish both the mechanisms by which ikigai might bring about – or protect – mental and physical well-being, and also whether ikigai is malleable to change. If one can *obtain* or *develop* ikigai, then it would be possible to develop interventions aimed at increasing ikigai as a means of supporting established health-care measures.

Acknowledgements

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Table 3. Correlations and standardized regression coefficients between ikigai, well-being, depression, anxiety, and stress.

		Well-being		Depression		Anxiety		Stress	
Correlations									
Ikigai		.40***		-.14**		.04		.04	
Well-being		-		-.59***		-.35***		-.43***	
Depression				-		.68***		.71***	
Anxiety						-		.77***	
Stress								-	
Standardized regression coefficients									
Step 1	Sex	.14**	[.33, 2.46]	-.26***	[-8.14, -3.54]	-.14**	[-4.41, -.63]	-.04	[-2.76, 1.34]
	Age	.21***	[.04, .13]	-.12*	[-.21, -.02]	-.22***	[-.25, -.09]	-.14*	[-.20, -.02]
	Model	$F(2,346) = 9.64, p < .001$		$F(2,346) = 13.81, p < .001$		$F(2,346) = 11.09, p < .001$		$F(2,346) = 3.22, p = .04$	
	R^2	.05		.07		.06		.02	
Step 2	Sex	.11*	[.16, 2.12]	-.25***	[-7.95, -3.31]	-.14**	[-4.47, -.70]	-.04	[-2.82, 1.29]
	Age	.20***	[.04, .12]	-.12*	[-.21, -.02]	-.23***	[-.25, -.09]	-.14*	[-.20, -03]
	Ikigai	.39***	[.19, .31]	-.13*	[-.32, -.03]	.06	[-.06, .18]	.04	[-.08, .18]
	Model	$F(1,345) = 64.53, p < .001$		$F(1,345) = 5.95, p = .02$		$F(1,345) = 1.12, p = .29$		$F(1,345) = .65, p = .42$	
	R^2	.20		.09		.06		.02	