Determinants of Interdependent Happiness Focussing on The Role of Social Capital: Empirical Insight from Japan[1]

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Abstract

This study aimed to identify determinants of interdependent happiness (IH), with a focus on social capital resources. Using data from a population survey conducted in Sapporo, Japan, we ran hierarchical regressions to compare determinants of IH with determinants of a standard measure of subjective well-being (SWB), namely Diener et al.'s (1985) satisfaction with life scale (SWLS). While we confirmed the relationships of control variables generally associated with SWB also for IH, we found several decisive differences between the two well-being measures regarding social capital. For IH, an overall larger share of variance was predicted by social capital resources than for SWLS. IH is most strongly affected by social affiliation, which measures a sense of belonging to society, followed by interpersonal reliance, and social support. Reciprocal norms and institutional reliance predicted only IH, but not SWLS. Overall, our results imply that IH captures aspects of well-being related to social capital not fully covered by standard measures of SWB. Thus, for societies in which the cultural construal of happiness is more inclined to IH, the specific importance of social capital resources for subjective well-being might be underestimated when relying solely on standard measures of well-being.

Keywords: interdependent happiness, subjective well-being, social capital, life satisfaction, social affiliation.

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Interest in measurement and determinants of well-being has been growing over the past two decades, with researchers from various disciplines discussing how to measure well-being (Ryff & Keyes, 1995), what makes individuals happy (Dolan, Peasgood, & White, 2008; Layard, 2005), how their level of well-being can be enhanced (Helliwell, Layard, Sachs & De Neve, 2021; Wilkinson & Pickett, 2009, 2018), and determining the criteria to evaluate the quality of policy measures (Musikanski, Phillips, & Crowder, 2019; Organisation for Economic Co-operation and Development [OECD], 2020). While there is increasing agreement that, rather than economic growth, the subjective well-being (SWB) of citizens should be the standard against which to measure the quality of societies (United Nations General Assembly, 2011), it is only in recent years that attention has turned to possible cultural differences in the fundamental meaning of well-being and accompanying evaluation processes. Measurements of well-being, which have become standard instruments in international research, such as the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), have been devised in European and American cultural contexts. They largely focus on well-being as an individual achievement, the dominant orientation in individualistic, independent cultural contexts (Uchida, Norasakkunkit, & Kitayama, 2004). Cross-cultural comparisons show, however, that East Asian construal of well-being is based more strongly on achieving interpersonal harmony, quiescence, and ordinariness (Uchida et al., 2004; Uchida & Kitayama, 2009; Uchida & Ogihara, 2012). Accordingly, Hitokoto and Uchida (2015, 2018) developed the interdependent happiness scale to provide a measure of relation-based well-being, which seems to be of special importance as a predictor of subjective well-being (SWB) in interdependent cultural contexts like East Asia.

From this, it follows that if public policy aims at achieving the greatest happiness for the greatest number[3], it is important to understand what affects citizens' well-being within their specific cultural context. If interdependent happiness (IH) is a decisive aspect of individual well-being in East Asia, it is important to investigate how it is shaped and affected by the sociocultural context. Social capital is likely to be important in the formation of IH due to its relational nature and emphasis on

social harmony.

However, this idea is not new. A burgeoning amount of scholarship has focused on the role of social capital for individual and societal functioning (Helliwell & Putnam, 2004; Tokuda, Fujii, & Inoguchi, 2010), finding support for a positive and strong relationship between various forms of social capital and SWB (cf. Hommerich & Tiefenbach, 2018 for a literature review). While multiple definitions of social capital exist, the most established concepts focus on three pillars of (a) trust, (b) reciprocal norms, and (c) networks (Bourdieu, 1980; Coleman, 1988; Putman, 1993, 2000). All of these contribute to SWB at both individual and contextual levels.

Studies comparing countries found significant macro-level effects of social capital that can explain differences in country-level well-being (Bjørnskov, 2003; Delhey & Dragolov, 2016; Oishi & Schimmack, 2010), supporting the theoretical assumption that social capital resources improve the overall quality and liveability of societies. The mechanisms behind this can be understood from studies investigating the function of social capital for individual happiness. The most commonly tested and supported is the positive effect of ability to trust others on subjective wellbeing for a wide range of countries (e.g., Helliwell & Putnam, 2004; Leung, Kier, Fung, & Sproule, 2011; Portela, Neira, & del Mar Salinas-Jiménez, 2013), including Japan (Hommerich, 2012; Kuroki, 2011; Tokuda et al., 2010). While being fragile and nonspecific, general social trust is an important foundation for interpersonal relationships. It helps individuals make decisions in their everyday life as well as expand their social capital. This form of bridging capital plays an important role in inter-individual cooperation in a larger community and strengthens social cohesion (Yamagishi et al., 2015).

Closely linked to this function of social capital are reciprocal norms, which imply that favours will be repaid. Such reciprocal norms create a context which encourages people to help others[4], and is likely to come with the belief that others will help oneself in times of need. This feeling of being able to rely on others when necessary, or in other words, the perceived possibility of activating one's social capital, is robustly positively related to well-being in the empirical literature (Oishi, Diener, Lucas, &

Suh, 1999; Uchida, Kitayama, Mesquita, Reyes, & Morling, 2008). In a multi-country-comparison of data from the European Social Survey, Oarga, Stavrova, and Fetchenhauer (2015), show that the emotional benefits of reciprocal norms at the individual level are especially high in countries in which helping others is a widely endorsed social norm.

Measurements of social capital resources usually involve an assessment of individual networks, often differentiating between formal and informal relationships (Putnam, 2000). The former pertains to participation in civic organisations, contacts between citizens and civil servants, or other institutionalised organisations. The latter includes relationships with family, friends, colleagues, or neighbours (Ferlander, 2007). While Putnam (2000) emphasises the societal benefit of associational membership and larger networks, this might differ slightly at the individual level. Rodríguez-Pose and von Berlepsch (2014), in their analysis of the European Social Survey, found a positive effect of participation in informal networks on well-being, but only a small or no effect of participation in formal networks. In general, it seems to be the perceived quality of relationships rather than their number that affects well-being most strongly. Furukawa, Harai, Hirai, Kitamura, and Takahashi (1999) emphasize that it is not the social network size nor the received social support, but the perceived social support that prevents psychological distress, and, thereby, affects SWB.

Despite the bemoaned breadth and resulting vagueness of the concept of social capital (Bjørnskov & Sønderskov, 2013), recent research has pointed to the necessity of extending it even further in the context of investigating its connection with well-being, to accommodate an additional aspect of how individuals experience social context, namely that of belonging to the social whole, of being a respected and valued member of society. Existing studies often conceive this feeling of belonging negatively in terms of subjective experiences of marginalisation and disconnectedness (Böhnke, 2004; Bude & Lantermann, 2006; Hommerich, 2015, 2017), and subsume it under broader measurements of social exclusion (Burchardt, Le Grand, & Piachaud, 2002; Sen, 2000) or alienation (Böhnke, 2005). Feelings of being left out of society have been shown to have strong relationships

with SWB in Europe (Abbott & Wallace, 2012), and in East Asian contexts (Yuan & Golpelwar, 2012). Hommerich and Tiefenbach (2018), using data from Japan, found a strong effect of social affiliation on SWB, which is independent from and even slightly larger than that of standard measures of social capital.

In sum, the empirical literature indicates a positive relationship between social capital and SWB. Regarding the interdependent nature of well-being that Hitokoto and Uchida (2015) identified as prevalent in East Asian cultural contexts, it seems likely that relationships individuals have with others and how they evaluate themselves within these relationships – that is, their social capital – is of specific importance for their well-being. As such, the present study aimed to better understand determinants of IH compared to established measures of subjective well-being, with a focus on the impact of various forms of social capital.

To this end, we used IH as our dependent variable, suggesting its use as an additional measure of well-being, which might capture the impact of social context on SWB more than standard measures of well-being, which tend to be grounded on an independent construal of happiness. This approach differs from those of previous studies, in which IH was almost exclusively used as a predictor of SWB (Hitokoto & Uchida 2015, 2018). Furthermore, while most investigations of IH to date have been conducted with student samples or rather restricted adult samples[5], we used a random adult population sample from the City of Sapporo, Japan, which allowed us to test the determinants of IH with data that are representative of the city population. By comparing determinants of IH with those of a standard measure of SWB, namely Diener et al.'s (1985) satisfaction with life scale (SWLS), we could test how factors that have been discussed as universal determinants of well-being in the international well-being literature relate to IH and where there might be differing relationships. Such empirical insight can help to advance our understanding of IH and provide important information for policymakers as to what factors are especially important for citizens' well-being in an interdependent cultural context like Japan.

Method

While the selection of variables used is based on previous findings as presented above, our analytical strategy is exploratory in nature. We generally expect a stronger relationship between social capital measures and IH than with life satisfaction, but we do not formulate concrete hypotheses on the strength of the effects.

Data Collection

Our data stem from a postal survey developed by the authors in cooperation with the city of Sapporo in January 2019. Questionnaires were sent to 4000 individuals randomly sampled from Sapporo's residential registration list. We collected 1639 responses (return rate 41.9%), all of which were analysed. The residential registration list is updated monthly and presents the most reliable population statistic. The City of Sapporo has set up a "citizens survey system" (*shimin ankeeto shisutemu*) through which random samples can be drawn from the registry, while avoiding drawing the same person twice within two years. A comparison of the sociodemographic setup of the realised with the original sample showed slight overrepresentation of older age groups, but otherwise provided a representative sample of the city's population in terms of gender and distribution over the city districts. As our analyses controlled for age, the slight overrepresentation of older respondents did not impair the reliability of our results.

Dependent Variables: Subjective Well-being Indicators

While our focus is on contributing to a better understanding of the formation of interdependent happiness in an East Asian context, we included an additional measure of subjective well-being crafted in an American European cultural context as a point of comparison. Descriptive

statistics for the scales, including the actual items and Cronbach's alpha coefficients are presented in Table 1. Both were used as sum indices in the analysis, with Cronbach's alpha indicating high internal consistency.

Interdependent Happiness (IH). To measure this relatively new concept, we used the interdependent happiness scale, a 9-item scale developed by Hitokoto and Uchida (2015). Respondents were asked to evaluate the items on a 5-point scale from '1 = does not apply at all' to '5 = totally applied'.

Satisfaction with Life (SWLS). To test whether the determinants of interdependent happiness differ from other established measurements of SWB, we included the satisfaction with life scale (SWLS), developed by Diener et al. (1985), albeit using only three (of the original five) items, which respondents rated on the same scale as the items of the interdependent happiness scale. This reduced version of the scale was used due to restrictions in questionnaire length. Items were selected in close discussion with the city officer in charge of the survey at the City of Sapporo. We chose not to overtax respondents with different response scales, using the same 5-point scale as for IH (Kobau, Sniezek, Zack, Lucas, & Burns, 2010).

<Insert Table 1 about here>

Controls: Demographic and Socioeconomic Indicators

To control for the demographic and socioeconomic context, we included gender, age, marital status, living situation, educational level, labour market participation, and income. Except for education and labour market participation, for which results are mixed, the above have been discussed in the literature as universal impactors of SWB. The sample distributions of demographic and socioeconomic indicators are displayed in Table 2. Gender was coded as 0 for men and 1 for women. Age was measured in 10-year increments. Twelve respondents who indicated being below the age of

20 were merged with respondents in their 20's into a group of 18–29-year-olds. Marital status was divided into 'never married', 'married' (ref. category) and 'divorced or widowed'. To control for the possible effect of living alone, we divided respondents into those who were 'living alone' and those who were not (ref. category). Educational level was assessed by asking for the highest educational level achieved and was recoded into 'high school or less' and 'college education' (ref. category). For labour market participation, respondents categorised themselves as 'regular employees' (ref.), 'non-regular employee', 'self-employed', 'homemaker/part-time worker', 'student', 'retiree' or 'unemployed'. Self-reported annual household income was measured in seven increments ranging from '<2,000,000 Yen' to '≥12,000,000 Yen'.

As an additional variable that has shown a consistent significant relationship with SWB in the empirical literature (Dolan et al. 2008), we also controlled for respondents' health. Measuring this as subjective assessments, respondents were asked to rate their current health status from '1 = not good' to '5 = good' (mean = 3.25, *SD* = .96).

<Insert Table 2 here>

Explanatory Variables: Social Capital

As standard types of social capital, we included measures of (a) trust, (b) reciprocal norms, and (c) social network – the three pillars of social capital identified by classic social capital scholars (Bourdieu, 1980; Coleman, 1988; Putman, 1993, 2000). In addition, we included a fourth dimension, (d) social affiliation, which measures a feeling of belonging to society, which Hommerich and Tiefenbach (2018) found had a strong, independent effect on SWB. In the following section, we introduce our measures of social capital in more detail. All scales were used as sum indices, and indicated high internal consistency based on Cronbach's alpha or – for scales made up of two items – Spearman-Brown predicted reliability. The questionnaire items and descriptive statistics of the scales are presented in Table 3.

<Insert Table 3 here>

General Social Trust. We used five items from the General Trust Scale (GTS) originally developed by Yamagishi and Yamagishi (1994) and later modified by Yamagishi et al. (2015), a behavioural measure of general trust, as opposed to the standard single-item measure which assesses attitudinal trust. Respondents were asked to rate five statements on a 5-point scale, ranging from '1 = strongly disagree' to '5 = strongly agree'.

Reciprocal norms. Respondents rated three items taken from Jin and Shinotsuka (1996), and two items taken from Takagi, Ikeda, and Kawachi (2012), using the same 5-point scale as for general social trust. The first three tap into what Perugini et al. (2003) describe as beliefs in reciprocity, a more cognitive side of mechanisms of reciprocity, whereas the latter two ask about behavioral examples of positive reciprocity.

Social network. Social network was measured as different types of reliance and support network.

Reliance. Reliance, which adheres to the quality of a relationship, was measured focusing on three different types of networks: institutional reliance, for which respondents rated the extent to which they felt they could rely on formal relationships with institutionalised actors. The second form of reliance – reliance on the local community – included a mixture of formal and informal relationships, measuring reliance on neighbourhood organisations, NPOs, or neighbours. Items used to measure these different types of reliance were taken from a 2002 survey by the Japanese government (Cabinet Office, 2003). Respondents were asked whether they felt they could consult with or rely on a range of institutions, groups, or persons when having a problem or being worried about something in everyday life, with response categories ranging from '1 = cannot rely on at all' to '5 = can fully rely on'. These were grouped into the following three types of reliance, differing in terms of formality: institutional reliance, local community reliance, and interpersonal relationship reliance.

Support network. To assess the perceived quality of existing relationships, we used the

following three questions from the Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983): “Whom can you really count on to help you feel more relaxed when you are under pressure or tense?”, “Who accepts you totally, including both your worst and your best points?”, “Whom can you really count on to help you feel better when you are feeling generally down in the dumps?”. These items pertain more to emotional support than the measures for reliance outlined above. The Japanese translation of these items was taken from Furukawa et al. (1999). The original scale asks respondents to list all individuals who would provide the described support and then rate their satisfaction with the support received. Due to restrictions in questionnaire length, we could not assess both parts, and instead asked respondents to choose the most applicable answer from among the following categories for each item: ‘1 = no one (0 persons)’, ‘2 = not many (very few persons)’, ‘3 = a few people (about 5–6 persons)’, ‘4 = some people (around 10 persons)’, and ‘5 = many (more than 10 persons)’. This means that we do not have any information on who these contacts are, but only on how large a network respondents felt able to rely on for social support. This must be considered when interpreting the results.

Social affiliation. We used three items from a scale developed by Bude and Lantermann (2006) for Germany. While the original scale consists of six items measuring feelings of not belonging to the social whole, we selected the three items which showed the highest reliability when used in the Japanese context (Hommerich & Tiefenbach, 2018). The statements were evaluated by respondents on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) and coded in reverse for our analysis.

Results

Before running ordinary least squares (OLS) regressions on the two dependent well-being indicators, we tested their relationship. As expected, IH and SWLS were highly correlated with

$r(1585) = .744$ ($p < .001$), indicating a strong, but not perfect, relationship between the two well-being concepts. Hitokoto and Uchida (2018) report a similarly strong correlation (.77) based on data from a nationwide survey (Cabinet Office, 2012). While this indicates that both assess the same underlying concept of subjective well-being, we next moved to our multivariate analyses to test for possible subtle differences in the two happiness construals.

We ran a hierarchical regression on interdependent happiness, controlling for effects of socio-demographic context in step one, adding social capital resources in step two. For comparison, we ran the same model with SWLS as the dependent variable. Here also, we entered demographic and socioeconomic indicators in step 1 and then entered the social capital variables in step 2. The results of the hierarchical regression models for IH and SWLS are reported in Table 4 and Table 5 respectively. We report both non-standardised and standardised coefficients to provide full information for the reader but focus on an interpretation of the standardised coefficients when comparing the relative importance of the effects of the explanatory variables. Preliminary analyses were conducted to ensure that there was no violation of the multicollinearity assumption.

<Insert Table 4 here>

<Insert Table 5 here>

Including only controls in the first step, the explanatory power was somewhat higher for IH than SWLS, with shares of explained variance at 26.1% (IH) and 21.9% (SWLS). The inclusion of social capital resources in the second step led to a statistically significant increase in variance explained for both models, with explanatory power remaining higher for IH. An additional 21.9% of the variance in IH was explained by social capital resources. This share was larger than for SWLS (13.5%), supporting our hypothesis that social capital is more important for interdependent happiness than for the independent construal of happiness covered by SWLS. This might constitute a decisive difference in the formation of IH and is further focused on in the detailed discussion of the effects of social capital indicators. Including controls and social capital resources, we could explain large shares

of variance for both well-being indicators (48.1% for IH and 35.4% for SWLS).

In the second step of the hierarchical regression models, social capital measures showed similar patterns in their relationship with IH and SWLS, respectively, supporting the general importance of social capital for subjective well-being. Meanwhile, there are some distinct differences. General social trust had a positive effect of comparable size on IH and SWLS. However, reciprocal norms positively affected IH but had no significant relationship with SWLS.

Institutional reliance positively affected IH but had no significant relationship with SWLS Local community reliance predicted neither IH nor SWLS. Interpersonal reliance had a sizeable positive effect on both IH and SWLS.

Respondents' evaluation of their support network also had robust positive effects. Comparing the relative importance of the different types of reliance and support network, the latter had the strongest positive effect on SWLS, whereas interpersonal reliance had a stronger relationship with IH.

Finally, social affiliation which we included in our models as a fourth dimension of social capital proved to be a strong positive predictor of both IH and SWLS.

Discussion

The current paper aimed to better understand determinants of IH compared to SWLS, focusing on the impact of various forms of social capital. We used data from a representative population survey from Sapporo, Japan. With determinants being largely similar, our results suggest that IH captures aspects of well-being not covered by standard measures of SWB, which tend to be grounded in an independent construal of happiness. However, subtle differences need to be considered as discussed below.

Social Capital Variables

The results regarding social capital measures showed similar patterns with IH and SWLS, but

some distinct differences. General social trust had a positive effect of comparable size on IH and SWLS, in line with our expectations from existing studies, which could be confirmed for IH. Regarding reciprocal norms and reliance, our data showed differing patterns for IH and SWLS, significantly predicting IH but not SWLS. This indicates that stronger reciprocal norms are likely to foster a context of social harmony, in which a favour given is repaid without conflict, thereby increasing IH. On the other hand, this aspect of social capital seems to be unrelated to an independent construal of well-being as measured by the SWLS. In the context of the findings by Oarga, Stavrova and Fetchenhauer (2015) reported above, this indicates that an acceptance of reciprocal norms is especially beneficial for construals of well-being which are strongly grounded in a shared social norm of reciprocity, as it will reduce dissonance between individual and societal expectations. To SWLS, however, the measurement of which focuses on the individual without specifically considering social context, this normative aspect of reciprocity is unrelated. While differences between the two well-being measures are small, this points to a clear distinction made in the individual evaluation process.

As for reliance, institutional reliance positively affected IH, but had no significant relationship with SWLS. Being able to consult with or rely on the public institutions such as city, district office, childcare, and elderly care centres resulted in higher levels of IH, probably by alleviating anxieties and aiding individuals in leading stable lives in accordance with their surroundings. Local community reliance predicted neither IH nor SWLS. A possible interpretation is that these kinds of networks are more loosely knit, “weak” ties (Granovetter, 1973), which function to receive information and coordinate community life, but are not relied on for advice or help in more vital matters and, thus, do not affect subjective well-being. The mean values of the single items subsumed under this scale were lower than those for institutional and interpersonal reliance, which seems to support this interpretation. However, a more in-depth investigation of the expectations connected to different types of networks is necessary.

Interpersonal reliance had a sizeable positive effect on both IH and SWLS, which confirms

the findings of Rodríguez-Pose and von Berlepsch (2014) on the positive effect of informal relationships on well-being.

Respondents' evaluation of their support network, as a similar but less focused measure of interpersonal reliance had robust positive effects. Social support had the strongest positive effect on SWLS, whereas interpersonal reliance had a stronger relationship with IH. This seems to indicate that the type of intimate relationships measured here as support network (relationships in which an individual can "feel relaxed" or be accepted "totally, including your worst and your best points"), play a more important role for an independent, personal construal of well-being as SWLS. Such relationships include the possibility of acting without consideration for others and, thereby, might be less compatible with requirements connected to social harmony (Hitokoto & Takahashi 2020).

Finally, the strong positive effect of social affiliation confirms the results of Hommerich and Tiefenbach (2018) that feeling as part of the social whole and needed by others is of significant importance for subjective well-being. On IH, social affiliation had the strongest impact of all social capital resources, which indicates that this aspect of group belonging seems to be especially important for interdependent happiness. Social affiliation includes an aspect of status anxiety, of not being able to keep up, which is clearly detrimental to the inherent goal of IH being ordinary and about the same as others around oneself.

Sociodemographic Control Variables

In addition to the main findings reported above, we briefly review the relationships between the sociodemographic covariates and our two dependent variables. While our focus is on the effect of social capital resources, we believe that discussion of control variables is useful in identifying characteristics and factors associated with higher or lower IH and SWLS in the general population. Therefore, we hope to contribute to an even deeper understanding of similarities and differences between the two constructs, but also provide helpful information for policymakers in determining

social groups which are at high risk of experiencing low subjective well-being.

The relationship with sociodemographic controls was largely similar for IH and SWLS, supporting our idea of suggesting IH as an additional measure of SWB. Women's well-being was slightly higher than men's for both IH and SWLS. This effect remained significant but decreased in size after controlling for social capital resources in step two. This confirms findings from previous studies which point to higher levels of well-being for women, in general, but specifically in Japan, which was in part due to higher resources of social capital (as discussed in Hommerich & Tiefenbach, 2018). We also confirmed this finding for IH.

Regarding age, only restricted analyses were possible, as age was measured in increments, thus making it impossible to use age as ratio variable or include age-squared to test for a non-linear effect. Previous research for Japan on the relationship between age and well-being shows mixed results (for an overview, cf. Tiefenbach & Kohlbacher, 2015; Park, Joshanloo & Scheifinger 2019), with subtle differences depending on the operationalization of well-being and other variables controlled for. Here, interpreting the age groups as ordinal variable, our data indicate that interdependent happiness increases with age. This confirms results by Hitokoto and Takahashi (2020) who find a positive relationship between age and IH in Japan, Costa Rica and the Netherlands. The effect of age on IH disappeared; however, after controlling for social capital resources, which confirms the results of Hommerich and Tiefenbach (2018), who find a large indirect effect of age on SWB via social capital, specifically social affiliation, as the latter increased with age. There was no significant relationship between SWLS and age also before controlling for social capital. However, as we cannot control for a non-linear effect of age, this result needs to be taken with caution.

Results for marital status correspond to previous research, with respondents who were married showing significantly higher levels of well-being than respondents who had experienced divorce or had never been married, for SWLS, and for IH. Whether respondents lived alone or not did not significantly affect either IH or SWLS. However, once social capital resources were controlled for,

respondents who lived alone had somewhat higher IH, an interesting finding that calls for further investigation in future research.

There was no significant impact of education, measured here by comparing respondents with college degrees to those with lower educational levels. As previous research on the relationship between SWB and education is inconclusive, pointing to a complex relationship (Kobayashi & Hommerich, 2017), this was not surprising.

Regarding employment status, there were no significant differences in IH among regular and non-regular employees, self-employed, homemakers,[6] or students. Regarding life satisfaction, self-employed workers showed higher satisfaction than regular employees, which is consistent with some previous studies in Japan, while other studies find the opposite or even no effect (Tiefenbach & Kohlbacher, 2015). Retirees had significantly higher well-being than regular employees (reference category) for both IH and SWLS. This effect was especially large for satisfaction with life and remained strong when controlling for social capital resources. This indicates an increase in well-being gained from being freed from the burdens of functioning in a demanding work environment, after having done one's duty and retiring from the labour market, independent of differences in social capital resources pre- and post-retirement.

This experience is likely very different from that of involuntary unemployment, which correlated with significantly lower levels of interdependent happiness, compared to regular employees, but showed no significant relationship with life satisfaction. The effect on IH disappeared; however, after controlling for social capital resources, as the unemployed had lower resources of all types of social capital analysed, with the exception of institutional reliance. The differences were especially large regarding social affiliation and interpersonal reliance.[7]. This points to the stigmatising effect of unemployment. Our results indicate that being involuntarily unemployed relates to feelings of being left behind by society and being unable to contribute to the social whole. Unemployment also seems to be accompanied by stronger feelings of being unable to rely on significant others. All these factors

negatively affect IH, probably because they hinder an individual in feeling able to make significant others' happy and fulfilling social expectations.

Household income showed a consistent positive relationship of comparable strength with both IH and SWLS, which remained strong after controlling for social capital resources. For satisfaction with life, this is consistent with previous findings in Japan (cf. Park, Joshanloo & Scheifinger 2019), and we can here confirm this relationship for IH.

The overall largest share of the explained variance in IH and SWLS can be attributed to subjective health. When splitting this up in a separate hierarchical model, with all other control variables entered first, and subjective health second, we find subjective health explains an isolated share of 16.2% of the variance in IH and 12.6% of variance in SWLS. This confirms the robust positive impact of health on subjective well-being reported in the literature, also for IH. As we used subjective health, it is likely that we measured not only respondents' physical but also mental health. Therefore, a strong relationship is not surprising.

Conclusion

Our results have two main implications. First, we show that determinants of IH and SWLS are largely similar, which support our suggestion to use IH as an additional measure of SWB. Second, we show that social capital resources explain a large share of variance in IH, and that this share is larger than that for SWLS. This confirms our assumption of a specific function and the importance of social capital for an interdependent construal of happiness. While overall, differences of determinants of IH and SWLS are small, we find subtle differences in the relative importance of the included social capital resources. Social affiliation had the strongest effect on IH, followed by interpersonal reliance, and support network. SWLS was most strongly affected by support network, followed by social affiliation, and interpersonal reliance. Reciprocal norms and institutional reliance predicted only IH and had no significant relationship with SWLS. This latter finding indicates that a belief in reciprocity

is closely interrelated with a concern for the happiness of others, whereas this does not seem to be of significance for an independent, more personal evaluation of satisfaction with life.

Our results imply that within an interdependent construal of happiness it is especially crucial to feel as contributing and respected member of the social whole. While this also had a significant impact on satisfaction with life, the relative effect was smaller. We further find that agreement with reciprocal values enhances interdependent happiness, while not being relevant for SWLS. This confirms findings by Oarga, Stavrova and Fetchenhauer (2015), that reciprocal norms are especially beneficial for well-being in societies which strongly endorse a shared social norm of reciprocity but differentiates their results by clarifying the added value of reciprocal norms for an interdependent, but not an independent construal of well-being.

Overall, our findings indicate that IH covers additional facets of well-being not captured by standard measures of well-being. Therefore, relying solely on standard, independence-oriented measures of well-being could lead to an underestimation of the specific importance of these aspects, especially in an interdependent cultural context like Japan. This should be valuable information for policymakers, as it is an important indication of what kind of measures need to be focused on to work towards increasing well-being.

Nevertheless, we are aware that our study has several limitations. First, our data are restricted to one city, which likely reduced variance for some of our indicators than we would find in data from a broader population. As our data stems from Sapporo, located in Japan's "northern frontier" (Kitayama et al. 2006), a region with a stronger independent orientation within the overall interdependent context of Japan, it might be that the effects of social capital for IH are somewhat underestimated Therefore, it would be desirable to repeat this analysis using a nationally representative sample.

Further, to understand whether IH might even be used not only as an additional, but an alternative measure of SWB, further studies are necessary which test the relationship of a broader

range of well-being determinants with IH in comparison with other SWB measures. Extending these studies across other cultural contexts is equally desirable, to understand whether IH is of specific importance in interdependent cultural contexts, and whether determinants and functions of IH differ across cultures. .

Another notable limitation of this study is its cross-sectional nature, which does not allow for assumptions about causality. Longitudinal assessments could advance the present findings by enabling identification of potentially mutually reinforcing mechanisms in the formation of interdependent happiness. Such investigations should include measurements of behaviours which are likely to be interrelated with well-being, and specifically IH, such as prosocial behaviour, volunteering, or organisational membership.

In sum, our data show that social contexts in which individuals feel they can trust others, rely on governmental institutions and can feel as valued and contributing members of society foster well-being, and that seems to be especially important for interdependent construals of well-being, which has been shown to be highly endorsed especially within East-Asian cultures. Therefore, to provide an opportunity for a happy life for as many citizens as possible, specific attention is needed to those who feel left behind, think of themselves as useless or as a burden for society, or have no one to rely on when needed. Such feelings are likely to accompany economic vulnerability, that is, being unemployed or precariously employed, and social isolation, that is, the elderly living alone (see also Murayama, Yamazaki, Hasabe, Takahashi, & Kobayashi, 2021). Despite its limitations, we hope that this study can be a first step towards a deeper understanding of determinants of well-being in East Asian cultural contexts, but also beyond and might encourage future research on this topic. In the long run, this will help facilitate the creation of empirically informed policy approaches to improving well-being in Japan.

Conflict of Interest

1

2 The authors declare no conflicts of interest associated with this manuscript.

3

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(Received May 7, 2021; accepted February 15, 2022)

Table 1.

Descriptive Statistics of Well-being Indicators

Items	Mean	*SD*	Min	Max
Interdependent Happiness (α = .88)				
I believe that I and those around me are happy.	3.26	0.74	1	5
I feel that I am being positively evaluated by others around me.	3.24	0.84	1	5
I make significant others happy.	3.60	0.86	1	5
Although it is quite average, I live a stable life.	3.95	0.84	1	5
I do not have any major concerns or anxieties.	3.35	1.06	1	5
I can do what I want without causing problems for other people.	3.69	0.93	1	5
I believe that my life is just as happy as that of others around me.	3.50	0.91	1	5
I believe I have achieved the same standard of living as those around me.	3.54	0.96	1	5
I generally believe that things are going well for me in its own way as they are for others around me.	3.55	0.87	1	5
Satisfaction with life (α = .91)				
In most ways my life is close to my ideal.	2.90	0.99	1	5
The conditions of my life are excellent.	3.03	1.04	1	5
I am satisfied with my life.	3.28	1.07	1	5

Note: α indicates the Cronbach's alpha coefficient.

Table 2.

Summary of the Sample Distribution of Demographic and Socioeconomic Indicators

Variable	Category	*N*	%
Gender	Male (ref. category)	696	43.1
	Female	917	56.9
Age	18–29 years	126	7.7
	30–39 years	189	11.6
	40–49 years	263	16.1
	50–59 years	274	16.8
	60–69 years	354	21.7
	70 years and older	423	26.0
Marital status	Never married	286	17.8
	Married (ref. category)	1078	67.0
	Divorced, Widowed	245	15.2
Living situation	Living alone	420	26.4
	Not living alone	1172	73.6
Education	High school or less	746	47.2
	College education (ref. category)	836	52.8
Employment status	Regular employee (ref. category)	493	31.0
	Non-regular employee	101	6.3
	Self-employed	75	4.7
	Homemaker/Part-time worker	453	28.5
	Student	36	2.3
	Retiree	401	25.2
	Unemployed***	33	2.1
Household income**	<2,000,000 Yen	166	13.0
	≥2,000,000 Yen <4,000,000 Yen	445	34.7
	≥4,000,000 Yen <6,000,000 Yen	334	26.1
	≥6,000,000 Yen <8,000,000 Yen	207	16.2
	≥8,000,000 Yen <10,000,000 Yen	129	10.1

Notes: *Age was measured in categories. Therefore, we could not calculate the mean age. **Additional higher income categories were available in the questionnaire but were not selected. A total of 358 respondents did not report their income (21.8% of the sample). The results reported here are valid percentages. ***206 respondents in their 70s and older and 62 respondents in their 60s who

self-reported as “unemployed” were recoded as “retirees”, as they were unlikely to be actively looking for work, which is how we here interpret this category.

Table 3

Descriptive Statistics of Social Capital Indicators

Items	Mean	SD	Min	Max
General social trust (α = .86)				
Most people are generally honest.	3.19	0.92	1	5
Most people are trustworthy.	3.03	0.87	1	5
Most people are basically good and kind.	3.29	0.86	1	5
Most people are trustful of others.	2.89	0.81	1	5
Most people will respond in kind when they are trusted by others.	3.54	0.86	1	5
Reciprocal norms (α = .85)				
In this world, being nice to others will positively come back to you.	3.58	0.96	1	5
In this world, everything is about give and take.	3.85	0.86	1	5
To be successful in this society, people need to help each other.	4.13	0.79	1	5
If someone helps me, I would also help another person.	4.28	0.78	1	5
If I see people who cooperate with each other, I also feel that I would help someone in need.	4.20	0.78	1	5
Institutional reliance (Spearman-Brown predicted reliability = .80)**				
City office, district office, police	3.40	1.00	1	5
School, hospital, childcare centre, elderly care centre	3.53	0.90	1	5
Local community reliance (α = .81)**				
Neighbourhood organization or local organization	2.69	0.94	1	5
Volunteer organization, NPO, civic activity group	2.75	0.91	1	5
Neighbours	2.93	1.00	1	5
Interpersonal reliance* (α = .75)				
Family	4.47	0.82	1	5
Relatives	3.65	1.08	1	5
Friends, Acquaintances	3.82	0.90	1	5
Co-workers	3.17	1.07	1	5
Support network (α = .92)				
Whom can you really count on to help you feel more relaxed when you are under pressure or tense?	2.62	0.868	1	5
Who accepts you totally, including both your worst and your best points?	2.49	0.851	1	5
Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?	2.61	0.883	1	5
Social affiliation (reversed) ** (α = .83)				
I am worried that society leaves me behind.	3.8	1.00	1	5
I feel like I do not really belong to society.	3.73	1.00	1	5
I feel that nobody needs me.	3.72	1.00	1	5

Notes: *The related question was: When you have a problem or are worried about something in your everyday life, are there certain people or institutions that you consult with or rely on? **Recoded items are displayed with '1 = strongly agree' to '5 = strongly disagree' as used for the sum index. α indicates Cronbach's alpha coefficient

Table 4.
Results of Linear Regression Models Predicting Interdependent Happiness

	Step 1					Step 2				
	B		SE B	β	VIF	B		SE B	β	VIF
(Intercept)	2.111	***	(0.118)			0.287	*	(0.133)		
Woman	0.112	**	(0.038)	0.087	1.481	0.072	*	(0.033)	0.056	1.508
Age	0.045	**	(0.015)	0.115	2.378	0.032	*	(0.013)	0.081	2.583
Marital status										
Married (ref.)	-		-	-		-		-	-	
Divorced	-0.161	**	(0.051)	-0.091	1.364	-0.133	**	(0.043)	-0.075	1.371
Never Married	-0.261	***	(0.054)	-0.157	1.727	-0.176	***	(0.045)	-0.105	1.744
Living alone (not living alone = ref.)	0.057		(0.040)	0.039	1.272	0.078	*	(0.034)	0.054	1.286
Education: high school or less	-0.042		(0.034)	-0.033	1.161	-0.027		(0.028)	-0.021	1.167
Employment status										
Regular employment (ref.)	-		-	-		-		-	-	
Non-regular Employment	-0.003		(0.070)	-0.001	1.191	0.006		(0.059)	0.002	1.209
Self Employed	0.092		(0.080)	0.031	1.164	0.087		(0.067)	0.029	1.177
Homemaker/Part-time worker	0.033		(0.051)	0.023	2.204	0.071		(0.044)	0.051	2.248
Student	-0.059		(0.115)	-0.014	1.203	-0.005		(0.098)	-0.001	1.219
Retiree	0.129	*	(0.057)	0.088	2.527	0.146	**	(0.049)	0.099	2.594
Unemployed	-0.213	*	(0.117)	-0.052	1.128	0.008		(0.100)	0.002	1.162
Household income	0.088	***	(0.016)	0.162	1.506	0.070	***	(0.014)	0.129	1.519
Subjective health	0.279	***	(0.017)	0.417	1.077	0.172	***	(0.015)	0.258	1.205
General social trust						0.088	***	(0.023)	0.096	1.516
Reciprocal norms						0.093	***	(0.024)	0.097	1.438
Social network										
Institutional reliance						0.053	**	(0.018)	0.073	1.457
Local community reliance						0.001		(0.021)	0.002	1.703
Interpersonal reliance						0.141	***	(0.022)	0.164	1.605
Support network						0.094	***	(0.018)	0.118	1.255
Social Affiliation						0.171	***	(0.017)	0.233	1.281
R^2	0.261							0.481		
ΔR^2								0.219		

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5.
Results of Linear Regression Models Predicting Satisfaction with Life

	Step 1				Step 2			
	B	SE B	β	VIF	B	SE B	β	VIF
(Intercept)	1.283 ***	(0.182)			-0.568 **	(0.221)		
Woman	0.180 **	(0.059)	0.094	1.481	0.124 *	(0.054)	0.064	1.508
Age	0.040	(0.023)	0.068	2.378	0.025	(0.022)	0.042	2.583
Marital status								
Married (ref.)	-	-	-		-	-	-	
Divorced	-0.246 **	(0.078)	-0.093	1.364	-0.222 **	(0.071)	-0.084	1.371
Never Married	-0.385 ***	(0.083)	-0.154	1.727	-0.293 ***	(0.076)	-0.118	1.744
Living alone (not living alone = ref.)	-0.030	(0.061)	-0.014	1.272	0.002	(0.056)	0.001	1.286
Education: high school or less	-0.057	(0.052)	-0.030	1.161	-0.036	(0.047)	-0.019	1.167
Employment status								
Regular employment (ref.)	-	-	-		-	-	-	
Non-regular Employment	-0.065	(0.108)	-0.017	1.191	-0.059	(0.099)	-0.015	1.209
Self Employed	0.259 *	(0.122)	0.058	1.164	0.204	(0.112)	0.045	1.177
Homemaker/Part-time worker	0.026	(0.079)	0.012	2.204	0.051	(0.073)	0.024	2.248
Student	0.131	(0.177)	0.020	1.203	0.171	(0.163)	0.027	1.219
Retiree	0.339 ***	(0.088)	0.154	2.527	0.324 ***	(0.081)	0.148	2.594
Unemployed	-0.196	(0.179)	-0.029	1.128	0.049	(0.166)	0.007	1.162
Household income	0.117 ***	(0.025)	0.144	1.506	0.093 ***	(0.023)	0.114	1.519
Subjective health	0.368 ***	(0.026)	0.369	1.077	0.224 ***	(0.025)	0.224	1.205
General social trust					0.119 **	(0.039)	0.087	1.516
Reciprocal norms					0.047	(0.039)	0.033	1.438
Social network								
Institutional reliance					-0.004	(0.030)	-0.004	1.457
Local community reliance					0.067	(0.035)	0.057	1.703
Interpersonal reliance					0.117 **	(0.037)	0.091	1.605
Support network					0.225 ***	(0.030)	0.191	1.255
Social Affiliation					0.167 ***	(0.029)	0.153	1.281
R^2		0.219				0.354		
ΔR^2						0.135		

* $p < .05$, ** $p < .01$, *** $p < .001$.

Footnotes

[1] This study was conducted in collaboration with the Bureau of Town Development Policy in the city of Sapporo. The original report of the survey is available on Sapporo's website (https://www.city.sapporo.jp/somu/machikiso/documents/h30machikiso_community01.pdf). For this paper, we conducted further analysis with the data from the report.

[2] The authors are grateful to the city of Sapporo for providing the dataset.

[3] While this phrase is often attributed to Jeremy Bentham it does not originate from him. Nevertheless, he discussed the idea in much detail (Bentham, 1789).

[4] Whether this arises out of intrinsic or extrinsic motivation, however, is a topic of scholarly debate (Oarga, Stavrova, & Fechtenhauer, 2015).

[5] While the interdependent happiness scale was included in a population survey carried out by the Japanese government in 2011 (Cabinet Office 2012), the survey report implies that no empirical investigation of its determinants was undertaken.

[6] The category "homemakers" includes respondents who were taking care of a household full-time, as well as respondents who worked part-time at the same time. Unfortunately, we could not differentiate between these two groups due to the design of the answer categories.

[7] Full results including all employment status groups are available from the authors upon request.