# Selflessness and Happiness in Everyday Life: An Experience Sampling Method Based Study

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## Abstract

Using the Experience Sampling Method (ESM), this study examines the relationship between experienced selflessness and experienced happiness. Based on the Self-centered/Selflessness Happiness Model (SSHM), we hypothesized that: (a) these two constructs would be positively related and, (b) harmony feeling would mediate this relation. Using ESM, the participants ($N$ = 63) filled in a short survey, five times a day during two days (response rate = 79.2%; 482 observations). A linear mixed-model analysis showed that selflessness and harmony feelings were significant predictors of happiness. Finally, a mediation analysis indicated that harmony feeling emerged as a significant mediator of the relationship between selflessness and happiness at the experienced level. Overall, the study supports the idea that happiness does not depend solely on the satisfaction of one's expectations but experiencing the self as an interdependent and relational entity also plays an important role. The implications of this study are discussed.



*Keywords:* Selflessness, Authentic-Durable Happiness, Harmony Feeling, Experience Sampling Method

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## Introduction

The rise of positive psychology in the first decades of the 21st century (Seligman, 2014) has strongly promoted the research on happiness in psychology (e.g., Linton, Dieppe, & Medina-Lara, 2015). Researchers have developed a wide diversity of happiness models (Deci & Ryan, 2008; Huta & Waterman, 2014). A classical operationalization of happiness, still widely privileged today, is satisfaction with life, that is, a cognitive appreciation of one's life (Diener, Emmons, Larsen, & Griffin, 1985) or, more generally, subjective well-being (Diener, 2018; Kahneman & Krueger, 2006).

Recently, alternative models—more inspired by eastern conceptions of happiness—have emerged (Dambrun & Ricard, 2011; Delle Fave et al., 2016; Kjell, Daukantaitė, Hefferon, & Sikström, 2016). As Kjell et al. (2016) proposed, "satisfaction only represents *one* important aspect of cognitive well-being—involving the evaluative mindset based on self-centered expectations" (p. 894, emphasis in the original). Harmony in life would differ from satisfaction with life by more emphasizing balance and flexibility (Kjell et al., 2016).

Similarly, Dambrun and Ricard (2011) developed the Selflessness/Self-centeredness Happiness Model (SSHM), according to which the experience of a stable and independent self (i.e., self-centeredness) would lead to affliction and fluctuating happiness, whereas the experience of an interdependent and impermanent self (i.e., selflessness) would lead to authentic-durable happiness (A-DH). The main assumptions of the SSHM have been empirically tested, mostly using self-report questionnaires (Dambrun, 2016, 2017; Dambrun & Ricard, 2011; Dambrun et

al., 2012). In this paper, we aim to test the selflessness part of the model using a method that permits to assess happiness, selflessness, and related constructs at the experienced level.

**Selflessness/Self-centeredness Happiness Model**

The main assumption of the SSHM (Dambrun & Ricard, 2011) is that the nature of happiness one experiences (i.e., fluctuating vs. durable happiness) is related to two qualitatively distinct self-based psychological functioning, namely self-centeredness and selflessness. According to the SSHM, the perception of the self as a well-defined entity with sharp boundaries, that is independently and permanently existent, characterizes self-centeredness. When behaving in a self-centered manner, one intuitively seeks to attain pleasure and reduce displeasure for the sake of this entity reified as truly distinct and relatively autonomous (i.e., hedonic principle). Under this circumstance, specific affective reactions ensue (i.e., stimulus-driven pleasures and afflictive affects). Feelings of pleasure, joy, and transitory satisfaction emerge in dependence upon the appearance of certain stimuli—the attainment of expected positive outcomes and avoidance of negative ones. The facts that (1) appearance of the desired stimuli is not entirely under the control of the individual; and that (2) people become quickly accustomed to it (i.e., hedonic adaptation) make stimulus-driven pleasures to be transitory and fleeting by nature. In addition, the impossibility of attaining what one seeks gives rise to afflictive affects. These are mental reactions - such as anger, jealousy, fear, and pride - that impair our well-being and have the tendency to reinforce self-centeredness. The alternation of short phases of well-being and ill-being defines fluctuating happiness.

One of the original contributions of the SSHM is that it does not describe self-centeredness as a unique possible way of functioning. The model proposes that the perception of the self as an impermanent and interdependent (with others, nature, or the universe at large) entity

is the basis for selflessness. When people recognize their own interdependence, they seek to harmoniously adjust all parts (including themselves) of the "whole" (`harmony principle'). By virtue of this, one experiences emotional stability and the feeling of being in harmony, both leading to authentic-durable happiness, that is, a state of deep peace and contentment. This type of happiness is described as authentic because it does not depend on external circumstances but reflects a profoundly emotionally balanced "state of being" (Dambrun & Ricard, 2011, p. 139). It is durable due to being relatively free from externally driven emotional fluctuations. The SSHM describes at least two explanations of the relationship between selflessness and authentic-durable happiness. The first explanation concern the role of emotional stability has a mediator in the selflessness-happiness causation. In a selfless functioning, satisfaction and dissatisfaction are not dependent on the presence of specific external stimuli (i.e., pleasant and unpleasant ones). Therefore, emotional stability occurs because one gets free from excessive emotional reactions (i.e., afflictive affects). Instead, benevolent affects that characterize selflessness are unconditional (Dambrun & Ricard, 2012). For example, we can experience genuine love and compassion even toward people who dislike us (Sprecher & Fehr, 2006). Emotional stability was found to be positively associated with connectedness with others (Leary, Tipsord, & Tate, 2008) and happiness (DeNeve & Cooper, 1998; Hills & Argyle, 2001). According to the second explanation, the SSHM predicts that benevolent affects promote the feeling of being in harmony with others and the environment by acting in a selfless manner, and in harmony with oneself when intentions are in line with one's intrinsic values. In turn, this feeling of being in harmony would contribute to the quality and the stability of inner peace, thus to authentic-durable happiness.

The main assumptions of the SSHM have been empirically tested (Dambrun, 2016; Dambrun & Ricard, 2012; Dambrun et al., 2012; Hanley, Baker, & Garland, 2017). Using self-assessment questionnaires, factor analyses confirmed that the items relating to selflessness and self-centeredness were loaded on their respective factor, so the two constructs appear to be distinct and relatively independent (Dambrun, 2017). Moreover, emotional stability and feeling of being in harmony mediated the effects of selflessness on authentic-durable happiness, whereas afflictive affects mediated the relationship between self-centeredness and fluctuating happiness. In an experimental task, Dambrun (2016) showed that meditation affected happiness and that the change in perceived body boundaries (i.e., a marker of selflessness; Ataria, Dor-Ziderman, & Berkovich-Ohana, 2015) mediated the positive change in happiness. More recently, Dambrun et al. (2019) found that the effect of meditation on happiness was explained by greater feelings of unity (i.e., another marker for selflessness), which in turn positively affects feelings of harmony. In sum, these results are consistent with the SSHM. However, as acknowledged by Dambrun (2017), self-centeredness and selflessness would not only be related to evaluated happiness, but also to experienced happiness. The SSHM postulated that before being evaluated, self-centeredness and selflessness would be experienced in the first place. Thus, it would be important to examine the relationships between self-based psychological functioning (i.e., selflessness and self-centeredness) and happiness using a methodology that permits to assess these constructs at the experienced level rather than at the evaluated level. The experience sampling method (ESM) seems particularly appropriate in this regard.

## The Experience Sampling Method (ESM)

This technique was introduced in its modern form by Csikszentmihalyi, Larson, and Prescott (1977) to avoid well-known biases of self-reporting questionnaires (i.e., recollection

biases, social desirability) and to assess experienced rather than evaluated psychological constructs (Csikszentmihalyi & Hunter, 2003; Kahneman & Riis, 2005). For example, the ESM reduces the bias associated with the recovery of memories and those involved in the development of global judgments (e.g., judgments based on the most accessible memories, see Kahneman, 1999). In addition, the ESM provides time series that can permit inferences regarding temporal relationships (e.g., Steger, Kashdan, & Oishi, 2008). This technique also has good ecological validity since it is administered within the everyday life of individuals (Scollon, Kim-Prieto, & Diener, 2003). For all these reasons, the ESM is considered a gold standard for measuring subjective happiness (Scollon, 2018).

In a seminal ESM study, Csikszentmihalyi and Hunter (2003) assessed momentary experiences of happiness in adolescents and showed that their happiness was dependent on context. They were less happy when they participated in school activities or when they were alone, but were happier in their social or leisure activities, and in the presence of friends. In the same way, recent research also showed that the current context influences the experience of happiness (Choi, Catapano, & Choi, 2017; Killingsworth & Gilbert, 2010). However, no studies have yet explored the role of selflessness states in the experience of happiness. We designed an ESM study to fill this gap in the literature.

**The present study**

This paper aims to test the Selflessness/Self-centeredness Happiness Model (SSHM) assumptions at the experienced level using the ESM. In that manner, we were able to collect data about the participants' momentary experiences in their ecological context. Because ESM is intensive for participants, it is important to keep the number of questions asked at each time point to a minimum (Scollon, 2018). Therefore, this study was designed to take a first look at the

selflessness part of the model at the experienced level—the self-centered part of the model having been deliberately neglected. Note we were interested here in the associations between the variables at the within-person level only (i.e., at the experienced level), not at the between-person level. Therefore, the role of emotional stability will not be explored further in this paper, as this variable would only make sense at the between-person/trait level (see Jahng, Wood & Trull, 2008, for operationalizations of emotional instability). Instead, we focus on the relationships between momentary experiences of selflessness, harmony, and happiness. This study was designed to investigate the contemporaneous relationships between variables; thus, temporal relationships will not be explored (see the discussion section about this issue).

Thus, we predict that both experienced selflessness (H1) and experienced harmony (H2) would be significantly and positively related to experienced happiness. We also predicted and tested a mediation model in which experienced harmony would mediate the relationship between experienced selflessness on experienced happiness (H3).

## Methods

### Participants

We recruited the 64 participants mostly through student social networks. They did not receive any compensation for their participation. The sample had a large majority of women (81%). Participants were aged from 18 to 62 years old (M = 26, SD = 9). Regarding education, 15 participants declared having a High-School degree (23.5%), 6 having done two years following High-School (9.5 %), 19 having a Bachelor degree (30%), 12 having a Master's degree (19%), 10 having completed graduate studies (15.5%) and 2 were post-graduate (3%). The large majority of participants considered themselves belonging to the middle class (78%). Two participants

considered themselves belonging in a very low social class (3%), 9 in a low class (14%), and 3 in a high class (5%). None marked themselves as belonging to a very high social class.

**Procedure**

We collected the data using the Experience Sampling Method (Csikszentmihalyi & Hunter, 2003; Csikszentmihalyi et al., 1977). The participants were asked (by SMS) to respond to a short online survey (i.e., Qualtrics questionnaire) using their smartphone five times a day during two consecutive weekdays (never during weekends) - i.e., 10 sendings per participant, leading to 640 text messages sent. We randomly assigned the sending time within each 2h30 period - starting from 8 a.m. until 8:30 p.m. 515 completes cases were registered (response rate: 80%). We removed cases where response duration was too long (>15min), or too close in time from the previous case (<30min), and cases where participants answered only once, leaving 483 observations for 63 participants. Effects sizes from the study of Dambrun (2017) were .48 for the total effect of selflessness on happiness, .36 for the effect of harmony on happiness and .49 for the effect of selfless on harmony. Using the *simr* package for R (Green & MacLeod, 2016), power analyses showed that our design has a minimum of 98.10% chance to detect those effects.

**Material**

In each session, the participants had to answer several questions. Three items assessed selflessness (i.e., allo-inclusive identity, perceived body-boundaries salience, and oneness), two assessed authentic happiness (i.e., contentment and inner peace), and two assessed the feeling of being in harmony (i.e., with oneself, with others). The participants were asked to respond sincerely in accordance with their current feeling. The questions were randomized within the two blocks pertaining respectively to affects (i.e., contentment, inner peace, and emotional state) and other measures (i.e., allo-inclusive identity, perceived body boundaries, oneness, harmony with

oneself, and harmony with others). Other subjective dimensions not directly related to the present hypotheses were assessed and will not be presented here. Answers were registered by means of analogue scales ranging from 0 to 100. The median time for completing a session was 142 seconds. To assess Cronbach's alpha reliability estimates, we used the *alpha* function provided in Huang (2017). It allows assessing reliable estimates at the within-person level using the Multilevel Confirmatory Factor Analysis (MCFA) framework (Geldhof, Preacher, & Zyphur, 2014).

**Happiness.** The two items were derived from the Subjective Authentic-Durable Happiness Scale (SA-DHS, Dambrun et al., 2012), where respondents are asked to provide their "regular level of …" followed by some target concept. We selected items from the SA-DHS because it assesses both contentment and inner peace dimensions that are both important markers for authentic-durable happiness (Dambrun et al., 2012). The adaptation for the ESM consisted in two items asking participants to provide their current level of "happiness" for the contentment dimension and of "inner peace" for the inner peace dimension. These two items were selected on the basis of their high loadings on their respective dimension (see Dambrun et al., 2012. The response scale ranged from "very low" (0) to "very high" (100). The within-person reliability for happiness assessed by the two items was moderately satisfactory ($\alpha = .58$). Note that although the reliability estimate might be lower than the traditional acceptable criteria for trait measures, Nezlek (2017) suggested relaxing the standards for the state level reliability for two main reasons. First, fewer items leads to poorer reliability estimates (here the number of items per dimension is between 2 and 3). Second, the mixed method procedure such as used in this study addresses unreliability more completely than traditional multiple regression analyses. All pairs of responses were averaged into a single measure of experienced happiness.

**Selflessness.** Three items were used to assess selflessness: (a) the first item was derived from the allo-inclusive identity scale, which assesses the degree of connection with others and the natural world (Leary et al., 2008). The perception of the interconnected nature of the self is an important marker of selflessness in the SSHM (Dambrun & Ricard, 2011). Four couples of circles were shown. In each couple, a circle labeled "you" crossed another circle labeled "others," with the level of overlap indicating the degree of connection between the two entities. The participants rated their perception of connection with others on a scale ranging from "no connection" (0) to "full connection" (100). (b) The second item was the "perceived body boundaries salience" single-item scale. Dambrun (2016) derived this item from the work of Ataria et al. (2015) according to which the more flexible the sense of boundaries is, the weaker the sense of the self, ownership, and agency becomes. The participants indicated their current perception of their body state using a visual analogue scale depicting their own body with boundaries varying from almost imperceptible (0) to extremely salient (100). (c) The third item assessed oneness (i.e., "At this moment, I feel the unity with everything"). This item was derived from the oneness component of the mystical orientation scale (Francis & Louden, 2000). The feeling of oneness is a marker for unified consciousness and has been discussed and used as an important component of selflessness in a previous study (Dambrun et al., 2019). The within-person reliability for selflessness assessed by the three items was moderately satisfactory ($\alpha = .60$). The three items were averaged into a single measure of experienced selflessness.

**Feeling of being in harmony.** To assess the feeling of harmony, we selected items from the "feeling of being in harmony" scale (Dambrun, 2017) because, to our knowledge, it is the only one which assesses the feeling of being in harmony (i.e. perceived affective harmony) rather than the cognitive component of harmony (i.e. perceived harmony, as done for example by Kjell

et al., 2016). We incorporated two items from the scale: (a) The first item assessed the feeling of harmony with oneself. The participant rated their agreement with the following statement: "At this moment I'm feeling in harmony with myself"; (b) The second item assessed the feeling of harmony with others using the statement: "At this moment I'm feeling in harmony with others." Responses ranged from 0 ("not agree at all") to 100 ("totally agree"). The within-person reliability for harmony assessed by the two items was satisfactory ($\alpha = .68$). The two items were averaged into a single measure of harmony feeling.

However, because the three items, oneness, allo-inclusive identity and feeling of harmony with others, might appear to be conceptually very close, it was important to test for the structure of our theoretical measurement model before deciding to aggregate to the two items in a single harmony score. In our view, while the feeling of being in harmony with others captures an affective state (i.e., harmony feeling), oneness and allo-inclusive identity measures assess the perception of one's identity interdependence with others and all things (i.e., selflessness). Thus, one could feel in harmony with someone without perceiving one's own identity to be dependent on this person and vice versa. However, these items shared an inter- or extra-personal aspect, so people might tend to respond similarly to them only for that reason. This might be particularly true for the feeling in harmony with others and allo-inclusive identity items, which both emphasize the word "other" in their instructions. Therefore we intended to conduct a Multi-Level Factor Analysis (MCFA) before any further investigations. We hypothesized that a three dimensional model with all items loading on their respective latent factor (i.e., happiness, selflessness and feeling of harmony) would well fit the data, better than an alternative model where harmony with others would load on selflessness rather than on feeling of harmony. We

252 also expected that allowing a residual correlation between allo-inclusive identity and harmony
253 with others would improve model fit.

254 **Data analysis**

255 We used R (R Core Team, 2017) for all our statistical analyses, and linear mixed models
256 to test our hypotheses. Linear mixed models are particularly well fitted to ESM data because they
257 tolerate that participants do not fill the same number of measure occasions. The mixed-effects
258 modeling procedure is a variant of regression analysis using Maximum log-likelihood (ML) or
259 restricted log-likelihood (REML) optimization rather than ordinary least squares. Consequently,
260 data analyses do not depend on sphericity, as is the case in repeated measures ANOVA. Mixed-
261 effects models were computed using the *lme4* package (Bates, Mächler, Bolker, & Walker,
262 2015). For all models, the intercept was assumed as random (varying across persons), and a two-
263 level variance structure (person and experience levels) was adopted. Thus, the models generated
264 estimates indicating whether the outcome variables (e.g. "experienced happiness") and their
265 predictors (e.g. "experienced selflessness") were related, positively or negatively, while
266 controlling for the between-person variance. For regressions on continuous predictors, as is it the
267 case here, the coefficient essentially represents how much the outcome variable changes for any
268 unit change in the predictor. The significance of the relationship between variables is indicated by
269 the significance of the predictor, assessed by a *t*-value. For each model, we compared two
270 alternatives in terms of model fit: one which allowed slopes to vary across persons vs. the other
271 that did not allow inter-individual variations. For all models, the two alternatives fitted the data
272 very similarly, so we selected the more parsimonious models where slopes do not vary across
273 persons. We report standardized estimates with the help of the *beta* function of the *reghelper*
274 package (Hughes, 2018). We used the *mediation* package to perform the mediation analyses

(Tingley, Yamamoto, Hirose, Keele & Imai, 2014). The script and data that support the results can be found at https://osf.io/bdjg3/?view_only=e7ea6b2dcd424fa2bc5c332e9da6d4f7.

## Results

### Multi-Level Factor Analysis

We conducted a Multi-Level Confirmatory Factor Analysis (MCFA) with the *lavaan* package (Rosseel, 2012) to assess the reliability of our measures and the validity of our hypothesized structural model. We followed the procedure described in Huang (2017) to fit a level-one MCFA with unbiased estimates using clustered data. Cutoff values > .95 for CFI, < .08 for SRMR and < .06 for RMSEA determined good model fits (Hu & Bentler, 1999). The first structural model, where all items loaded on their respective latent factor (i.e., happiness, selflessness, and harmony), did not fit the data very well, $\chi^2 = 104.15$, $df = 11$, $p <. 001$, $CFI = .905$, $RMSEA = .142$, $SRMR = .059$, $AIC = 7495.08$. Also, the covariance matrix was not positive definite, as the standardized covariation between the selflessness and harmony latent constructs was greater than 1. Thus the model needed to be re-specified.

In an alternative model, covariations were added between manifest variables, oneness, allo-inclusive identity, and feeling of harmony with others. As explained earlier, these covariations were expected because all three items emphasize the inter- and extra-personal relationships. This second model converged and provided a good fit: $\chi^2 = 24.84$, $df = 8$, $p = . 001$, $CFI = .982$, $RMSEA = .078$, $SRMR = .036$, $AIC = 7425.79$. Feeling in harmony co-variated significantly with allo-inclusive identity ($\beta = .31$, $p < .001$) and with oneness ($\beta = .10$, $p < .001$). We also fitted another alternative model where feeling of harmony with others loaded on the selflessness factor (while keeping the residual covariation from the previous model). The fit of

this model was almost identical to the previous one: $\chi^2 = 27.40$, $df = 9$, $p = .002$, $CFI = .980$, $RMSEA = .070$, $SRMR = .037$, $AIC = 7422.32$. The $\chi^2$ difference test was not statistically significant : $\Delta\chi^2 = 2.55$, $p = .11$.

Because we were unable to differentiate the two models empirically, we decided to select the first model, which has theoretical support. Therefore we used the aggregated scores in our analyses for happiness, harmony, and selflessness as described in the method section.

**Descriptive statistics**

Table 1 displays the descriptive statistics and the within-person correlation of the study variables (person-mean centered). All the variables were moderately to strongly associated at a given time point.

Table 1. *Means, standard deviations, and within-person correlations of happiness, feelings of being in harmony, and selflessness.*

| Variables | mean | Sd | Happiness | Harmony | Selflessness |
|---|---|---|---|---|---|
| Happiness | 62.1 | 17.96 | 1.00 | | |
| Harmony | 59.7 | 20.32 | 0.57* | 1.00 | |
| Selflessness | 46.2 | 17.96 | 0.45* | 0.69* | 1.00 |

*Note*. 482 observations, 63 individuals; The variables have been person-mean centered to assess within-person correlations; * $p < .001$.

## Linear mixed models

Then, to test our two hypotheses, we calculated two linear mixed models with happiness as the dependent variable. In Model 1, only selflessness was included as a predictor of happiness. Then, in Model 2, feelings of harmony was added as an additional predictor[1].

Table 2 presents the estimates of the two contemporaneous models. In accordance with H1, Model 1 estimates show that the fixed-effect of selflessness on happiness is significantly positive. The more one experiences selflessness, the more happiness is likely to be experienced too. In agreement with H2, Model 2 estimates show that the fixed-effect of feeling of harmony on happiness is significantly positive. The effect of selflessness on happiness in Model 2 is no longer significant when controlling for feelings of harmony ($p = .19$). According to H3, the indirect effect of selflessness on happiness by the feeling of being in harmony was significant and mediated 86% of the total effect ($b = 0.40$, $CI_{95\%} = [0.32, 0.48]$, $p < .001$). Figure 1 depicts the result of the mediation analysis.

[1] Alternative models which included control variables such as age, education level and self-reported social class gave similar results.

Table 2. *Contemporaneous fixed effects on experienced happiness.*

| | Model 1 | | | | Model 2 | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | *b* | SE | 95% CIs | β | *b* | SE | 95% CIs | β |
| Intercept | 40.74* | 2.39 | [36.04; 45.43] | | 29.07* | 2.27 | [24.63; 33.51] | |
| Selfless | 0.46* | 0.04 | [0.38; 0.54] | .46 | 0.07 | 0.05 | [-0.03; 0.17] | .07 |
| Harmony | | | | | 0.50* | 0.04 | [0.42; 0.59] | .57 |

*Note*. 482 observations, 63 individuals; all variables were measured at the state level (within-person estimates), except for age, gender, education level, and reported social class, which have been measured at the person level (between-person estimates). *b* is for the unstandardized estimates, SE the standard error of the fixed effects provided by the models, CIs the 95% confidence intervals, and β the standardized estimates. * $p < .001$.

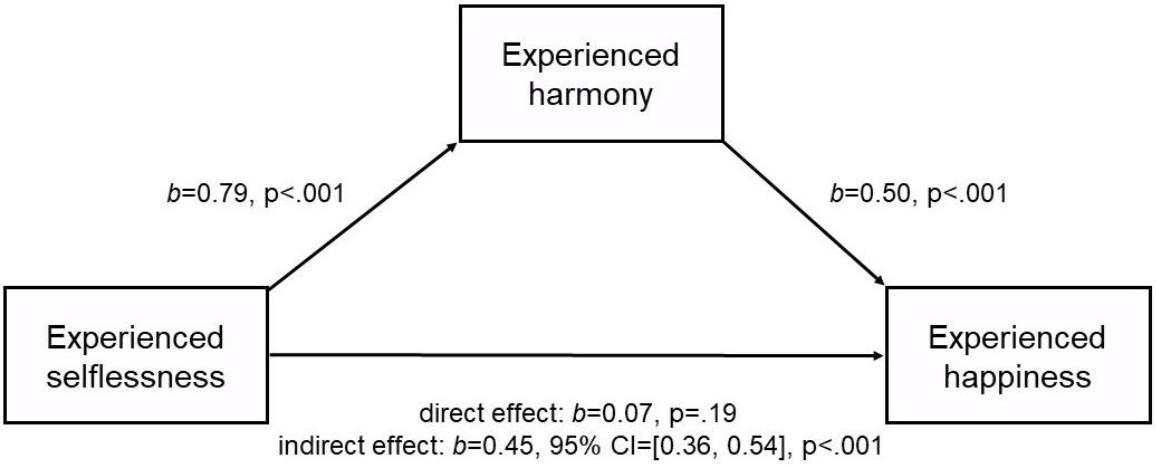


Figure 1. Experienced feeling of being in harmony as a mediator of the relationship between experienced selflessness and experienced happiness (Model 2).

## Discussion

The objective of this study was to test the main assumptions of the Selflessness/Self-centeredness happiness model (SSHM) at the experienced level, using the Experience Sampling Method (ESM). Overall, we found large evidence for the contemporaneous relationships between the study variables in the expected direction. At a given point in time, experienced happiness was significantly and positively related to both experienced selflessness (H1) and experienced harmony (H2). Experienced harmony mediated 86% of the relationship between experienced selflessness and experienced happiness (H3). This corroborates the SSHM hypothesis, that the experience of selflessness is associated with the experience of inner peace and contentment, and that this positive relationship is explained by feeling harmony. However, the results here are correlational, so we cannot confirm the directionality of the effects. It could be that feelings of harmony influence both selflessness and happiness, or that a fourth factor influence all variables in the same direction. For example, as suggested by a reviewer, in times of high resources, a person would experience positive feelings and would also be less inclined to act for its own appropriation of resources (Hobfoll, 2002; Hobfoll, Halbesleben, Neveu, & Westman, 2018), thus being less self-centered. Also, it has been shown that experiencing positive emotions broadens the scope of attention and thought repertoire (Fredrickson, 2013), and that cognitive flexibility may influence the perception of the self. Therefore, it would be important to go further in this investigation by exploring the temporal relationships between the variables, to see which experience precedes the other.

The design of our study didn't allow us to investigate these dynamic relationships for two reasons. First, this study was designed for the investigation of contemporaneous relationships only. Studying the dynamics of variables would require much more statistical power. Second,

because the time lag between the measurement occasions influences the effect size that is captured by the models, the observed effect might be stronger with a shorter, or a longer, time interval between measurements (Kuiper & Ryan, 2018). Here, the mean elapsed time between two occasions used in the analyses was 170 minutes (excluding night intervals). However, the variables assessed are very dynamic by nature, and the time interval is often too long in intensive longitudinal studies (Sened, Lazarus, Gleason, Rafaeli, & Fleeson, 2018). For example, it seems unlikely that the lagged effect of the feeling of being in harmony on happiness would reach its peak in two hours or more, but rather much sooner. Thus, we expect the effects to peak within two hours or less, before declining rapidly. Future studies should investigate the temporal relationships using appropriate time intervals, and more generally to chose shorter time intervals in pilot studies for the evaluation of the optimal time lag (Dormann & Griffin, 2015).

Multi-level factor analysis supported a three-dimensional model, with happiness, selflessness, and feeling of harmony as latent factors. Our measurement model only fitted the data satisfyingly when residual covariations between feeling of harmony with others, oneness, and allo-inclusive identity items were freely estimated. An alternative model fitted the data very similarly to the previous one. In this alternative, feeling of harmony with others is loaded on the selflessness latent factor instead of harmony. Thus, it was not possible to make a clear demarcation between selflessness and feeling of harmony constructs based on our data. It might be possible to make this distinction by adding a few additional items to the latent factor of harmony. An alternative would be to assess harmony with a single item that omits reference to oneself or others (“At this moment, I’m feeling in harmony”).

In terms of the main limitation of this study, our sample was mainly French, female, young, and well-educated, for only 63 participants. This composition prevents the generalization

of our findings. Claiming that selflessness would generally contribute to human happiness would need the replication of these findings with larger samples, more representative in terms of age, economic, social and moral background, and more culturally diversified. Second, as a preliminary study on this issue, this study was limited in scope. We explored only one self-dimension of the SSHM, namely selflessness. On the other side, this paper opens promising perspectives with regard to further tests of the SSHM model at the experienced level. Using a similar methodology, future studies may examine the relationships between experienced self-centeredness, afflictive affects and fluctuating happiness. In addition, it will be interesting to challenge the SSHM with traditional happiness/resource-based models (Hobfoll, 2002). The SSHM would predict that selflessness might moderate the relationship between external events and happiness, reflecting emotional independence from external influences. Finally, recent studies (e.g., Dambrun, 2016; Dambrun et al., 2019) suggest that happiness and the specific components of self-consciousness such as the minimal and narrative self (Gallagher, 2013) are strongly intertwined. Using the ESM will be relevant to examine how changes in specific dimensions of self-consciousness co-vary —or not— with changes in happiness.

## Conclusion

In this Experience Sampling study, we tested the main assumptions of the Selflessness/Self-Centeredness Happiness Model (SSHM) at the experienced level. The results confirmed that experienced happiness was significantly associated with experienced selflessness at a given moment and that this relationship might be explained by the feeling of being in harmony. Future studies should refine this understanding by exploring the temporal relationships between the variables. Finally, future research could test the second part of SSHM - the effect of

self-centeredness on the fluctuation of happiness. Despite some limitations, this study confirms a central aspect of SSHM; people's experience of happiness seems to be intimately linked to their self-based psychological functioning; here, selflessness. Overall, the study supports the idea that happiness does not depend solely on the satisfaction of one's expectations, but experiencing the self as an interdependent and relational entity also plays an important role.

## References


Ataria, Y., Dor-Ziderman, Y., & Berkovich-Ohana, A. (2015). How does it feel to lack a sense of boundaries? A case study of a long-term mindfulness meditator. *Consciousness and Cognition*, *37*, 133–147. https://doi.org/10.1016/j.concog.2015.09.002

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Choi, J., Catapano, R., & Choi, I. (2017). Taking stock of happiness and meaning in everyday life: An experience sampling approach. *Social Psychological and Personality Science*, *8*(6), 641–651. https://doi.org/10.1177/1948550616678455

Csikszentmihalyi, M., & Hunter, J. (2003). Happiness in everyday life: The uses of experience sampling. *Journal of Happiness Studies*, *4*, 185–199. https://doi.org/10.1023/A:1024409732742

Csikszentmihalyi, M., Larson, R., & Prescott, S. (1977). The ecology of adolescent activity and experience. *Journal of Youth and Adolescence*, *6*(3), 281–294. https://doi.org/10.1007/BF02138940

Dambrun, M. (2016). When the dissolution of perceived body boundaries elicits happiness: The effect of selflessness induced by a body scan meditation. *Consciousness and Cognition*, *46*, 89–98. https://doi.org/10.1016/j.concog.2016.09.013

Dambrun, M. (2017). Self-centeredness and selflessness: Happiness correlates and mediating psychological processes. *PeerJ5*, e3306. https://doi.org/10.7717/peerj.3306

Dambrun, M., Berniard, A., Didelot, T., Chaulet, M., Droit-Volet, S., Corman, M., … Martinon, L. M. (2019). Unified consciousness and the effect of body scan meditation on happiness: Alteration of inner-body experience and feeling of harmony as central processes. *Mindfulness*, *10*(8), 1530–1544. https://doi.org/10.1007/s12671-019-01104-y

Dambrun, M., & Ricard, M. (2011). Self-centeredness and selflessness: A theory of self-based psychological functioning and its consequences for happiness. *Review of General Psychology*, *15*, 138–157. https://doi.org/10.1037/a0023059

Dambrun, M., & Ricard, M. (2012). La transcendance de soi et le bonheur : Une mise à l'épreuve du modèle du bonheur basé sur le soi centré-décentré. *Les Cahiers Internationaux de Psychologie Sociale*, *93*, 89–102. https://doi.org/10.3917/cips.093.0089

Dambrun, M., Ricard, M., Després, G., Drelon, E., Gibelin, E., Gibelin, M., … Michaux, O. (2012). Measuring happiness: From fluctuating happiness to authentic–durable happiness. *Frontiers in Psychology*, *3*, 1–11.https://doi.org/10.3389/fpsyg.2012.00016

Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies*, *9*, 1–11. https://doi.org/10.1007/s10902-006-9018-1

Delle Fave, A., Brdar, I., Wissing, M. P., Araujo, U., Castro Solano, A., Freire, T., … others. (2016). Lay definitions of happiness across nations: The primacy of inner harmony and relational connectedness. *Frontiers in Psychology*, *7*, 30. https://doi.org/10.3389/fpsyg.2016.00030

DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, *124*(2), 197–229. https://doi.org/10.1037/0033-2909.124.2.197

Diener, E. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, *2*, 253–260. https://doi.org/10.1038/s41562-018-0307-6

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*, 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Dormann, C., & Griffin, M. A. (2015). Optimal time lags in panel studies. *Psychological Methods*, *20*(4), 489–505. https://doi.org/10.1037/met0000041

Francis, L. J., & Louden, S. H. (2000). Mystical orientation and psychological type: A study among student and adult churchgoers. *Transpersonal Psychology Review*, *4*, 36–42.

Fredrickson, B. L. (2013). Chapter one - positive emotions broaden and build. In P. Devine & A. Plant (Eds.) *Advances in Experimental Social Psychology* (pp. 1-53). Vol. 47, Burlington: Academic Press. https://doi.org/10.1016/B978-0-12-407236-7.00001-2

Gallagher, S. (2013). A pattern theory of self. *Frontiers in Human Neuroscience*, *7*, 443. https://doi.org/10.3389/fnhum.2013.00443

Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological Methods*, *19*(1), 72–91. https://doi.org/10.1037/a0032138

Green, P., & MacLeod, C. J. (2016). Simr: An r package for power analysis of generalised linear mixed models by simulation. *Methods in Ecology and Evolution*, *7*(4), 493–498. https://doi.org/10.1111/2041-210X.12504

Hanley, A. W., Baker, A. K., & Garland, E. L. (2017). Self-interest may not be entirely in the interest of the self: Association between selflessness, dispositional mindfulness, and psychological well-being. *Personality and Individual Differences*, *117*, 166–171. https://doi.org/10.1016/j.paid.2017.05.045

Hills, P., & Argyle, M. (2001). Emotional stability as a major dimension of happiness. *Personality and Individual Differences*, *31*(8), 1357–1364. https://doi.org/10.1016/S0191-8869(00)00229-4

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*(4), 307–324. https://doi.org/10.1037/1089-2680.6.4.307

Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*(1), 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Huang, F. L. (2017). Conducting multilevel confirmatory factor analysis using r. *Unpublished Manuscript*. Retrieved from http://faculty.missouri.edu/huangf/data/mcfa/MCFA%20in%20R%20HUANG.pdf

Hughes, J. (2018). reghelper: Helper Functions for Regression Analysis. Retrieved from: https://CRAN.R-project.org/package=reghelper

Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies*, *15*, 1425–1456. https://doi.org/10.1007/s10902-013-9485-0

Jahng, S., Wood, P. K., & Trull, T. J. (2008). Analysis of affective instability in ecological momentary assessment: Indices using successive difference and group comparison via multilevel modeling. *Psychological Methods*, *13*(4), 354–375. https://doi.org/10.1037/a0014173

Kahneman, D. (1999). In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: Foundations of hedonic psychology* (pp. 3–25). New York, NY, US: Russell Sage Foundation.

Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, *20*, 3–24. https://doi.org/10.1257/089533006776526030

Kahneman, D., & Riis, J. (2005). Living, and thinking about it: Two perspectives on life. In F. A. Huppert, N. Baylis, & B. Keverne (Eds.), *The science of well-being* (pp. 285–304). Oxford University Press.

Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science*, *330*(6006), 932–932. https://doi.org/10.1126/science.1192439

Kjell, O. N. E., Daukantaitė, D., Hefferon, K., & Sikström, S. (2016). The harmony in life scale complements the satisfaction with life scale: Expanding the conceptualization of the cognitive component of subjective well-being. *Social Indicators Research*, *126*, 893–919. Journal Article. https://doi.org/10.1007/s11205-015-0903-z

Kuiper, R. M., & Ryan, O. (2018). Drawing conclusions from cross-lagged relationships: Re-considering the role of the time-interval. *Structural Equation Modeling: A Multidisciplinary Journal*, *25*, 809–823. https://doi.org/10.1080/10705511.2018.1431046

Leary, M. R., Tipsord, J. M., & Tate, E. B. (2008). In H. Wayment & J. Bauer (Eds.), *Transcending self-interest psychological explorations of the quiet ego* (pp. 137–147). Washington, DC, US: American Psychological Association. https://doi.org/10.1037/11771-013

Linton, M.-J., Dieppe, P., & Medina-Lara, A. (2015). Review of 99 self-report measures for assessing well-being in adults: Exploring dimensions of well-being and developments over time. *BMJ Open*, *6*, e010641. https://doi.org/10.1136/bmjopen-2015-01064

Nezlek, J. B. (2017). A practical guide to understanding reliability in studies of within-person variability. *Journal of Research in Personality*, *69*, 149–155. https://doi.org/10.1016/j.jrp.2016.06.020

R Core Team. (2017). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from https://www.R-project.org/

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*(2), 1–36. Retrieved from http://www.jstatsoft.org/v48/i02/

Scollon, C. (2018). Non-traditional measures of subjective well-being and their validity: A review. In E. Diener & S. Oishi (Eds.). Noba Scholar. DOI:nobascholar.com

Scollon, C. N., Kim-Prieto, C., & Diener, E. (2003). Experience sampling: Promises and pitfalls, strengths and weaknesses. *Journal of Happiness Studies*, *4*, 5–34. https://doi.org/10.1023/A:1023605205115

Seligman, M. E. (2014). *Positive psychology: An introduction*. Springer.

Sened, H., Lazarus, G., Gleason, M. E., Rafaeli, E., & Fleeson, W. (2018). The use of intensive longitudinal methods in explanatory personality research. *European Journal of Personality*, *32*(3), 269–285. https://doi.org/10.1002/per.2143

Sprecher, S., & Fehr, B. (2006). Enhancement of mood and self-esteem as a result of giving and receiving compassionate love. *Current Research in Social Psychology*, *11*(16), 227–242.

Steger, M. F., Kashdan, T. B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, *42*(1), 22–42. https://doi.org/10.1016/j.jrp.2007.03.004

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). mediation: R Package for Causal Mediation Analysis. *Journal Of Statistical Software*, *59*(5). https://doi.or/10.18637/jss.v059.i05