

Taking Stock of Happiness and Meaning in Everyday Life: An Experience Sampling Approach

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Abstract

The present study examines *momentary* experiences of happiness and meaning, two components of well-being, by using an experience sampling method. Participants included 603 Korean adults, who generated 24,430 responses over the course of 2–4 weeks. Results revealed that reported levels of happiness and meaning fluctuated substantially over the course of a day and that contextual factors, such as daily activities, social interaction partners, day of week, and time of day, along with demographic variables, were significant predictors of momentary happiness and meaning. In addition, we observe that people often experienced happiness and meaning independently of each other during a single daily event. In sum, momentary experiences of happiness and meaning were dynamic, related but distinct, and varied by individuals across daily events and over time.

Keywords

happiness, meaning, well-being, experience sampling, daily activity, social relationship, mind-wandering

From Aristotle (trans. 1985) to Seligman (2002), philosophers and psychologists alike have emphasized the necessity of both happiness and meaning to approach a life of “virtue” or “authentic happiness.” Although there is ongoing scholarly debate about the validity of the distinction between happiness (i.e., hedonia) and meaning (i.e., eudaimonia; Biswas-Diener, Kashdan, & King, 2009; Delle Fave & Bassi, 2009; Kashdan, Biswas-Diener, & King, 2008; Keyes & Annas, 2009; Waterman, 2008), recent evidence suggests that happiness and meaning are “related but distinct” and that each individually contributes to well-being (Compton, Smith, Cornish, & Qualls, 1996; Huta & Ryan, 2010; Keyes, Shmotkin, & Ryff, 2002; McGregor & Little, 1998; Schueller & Seligman, 2010).

Both scholars and laypeople agree that meaning, along with happiness, is an essential component of a “good life” (King & Napa Scollon, 1998). Previous research has examined the relationship between meaning and happiness on the global level (Compton et al., 1996; Keyes et al., 2002; McGregor & Little, 1998) or the daily level (King, Hicks, Krull, & Del Gaiso, 2006; Machell, Kashdan, Short, & Nezlek, 2015) and has shown that a moderate positive correlation exists between happiness and meaning. However, given that momentary experiences of well-being are often inconsistent with global levels of well-being (for review, see Kahneman, 1999), it is unclear whether the moderately positive relationship between happiness and meaning holds at a *momentary* level. In addition, previous work investigating well-being on the *momentary* level has focused exclusively on happiness and neglected meaning (Csikszentmihalyi & Hunter, 2003; Kahneman, Krueger, Schkade, Schwarz,

& Stone, 2004; Killingsworth & Gilbert, 2010; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). For example, Killingsworth and Gilbert (2010) assessed momentary levels of happiness across a variety of daily activities and reported the average happiness that Americans experienced during each activity; however, they failed to consider the levels of meaning during these activities. On the other hand, a few studies have examined the experience of meaning on a daily basis by using a daily diary method (King et al., 2006; Machell et al., 2015). These studies have shown that the level of meaning experienced fluctuates daily and that meaning in life and positive affect are positively related. Yet, they have not simultaneously investigated the antecedents of happiness and meaning on a momentary basis nor have they examined the relationship between the two. To address these issues, the present research assessed momentary experiences of meaning as well as happiness across a variety of contexts by utilizing an experience sampling method (ESM; Hektner, Schmidt, & Csikszentmihalyi, 2007) and investigated whether and how momentary experiences of happiness and meaning are related with each other.

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Along with momentary experiences of happiness and meaning, we assessed several contextual factors during each moment in order to examine the role of daily events in the experience of happiness and meaning. Previous studies have found that daily levels of well-being are significantly influenced by daily activities (Csikszentmihalyi & Hunter, 2003; Machell et al., 2015; White & Dolan, 2009), mind-wandering (Killingsworth & Gilbert, 2010), interaction partners (Kahneman et al., 2004; Vittengl & Holt, 1998), time of day (Clark, Watson, & Leeka, 1989), and day of week (Reis et al., 2000); therefore, we collected these variables on a momentary level and included them in our model to examine the extent to which they predicted momentary experiences of happiness and meaning. In addition, we included demographic characteristics (i.e., age, gender, and marital status) concurrently in our model. Age (Diener & Suh, 1997; Steger, Oishi, & Kashdan, 2009), gender (Reker, Peacock, & Wong, 1987; Wood, Rhodes, & Whelan, 1989), and marital status (Diener, Gohm, Suh, & Oishi, 2000; Ryff, 1989) have been shown to relate to individual differences in global levels of happiness and meaning. Thus, we examined whether these demographic variables predicted between-person differences in the average experiences of happiness and meaning in daily life after controlling for contextual factors.

Method

Participants

Participants included 603 individuals (56.1% female) from a large university and several cities in Korea. Participants were recruited via online advertisements and announcements in introductory psychology classes. All participants signed up for the study online. To provide sufficient statistical power for multilevel linear modeling, a large sample size at the top level of the multilevel hierarchy (i.e., the person level) is necessary for an ESM study (Scherbaum & Ferrer, 2009; Snijders, 2005). Hence, we decided to collect as many participants as our budget and resources allowed, yielding a goal of at least 600 participants. Online recruitment was stopped on the day when the intended sample was obtained for an initial total of 639 participants. Removing individuals who dropped out in the first week of the experience sampling survey ($n = 36$) left 603 participants. A post hoc estimation of statistical powers through simulation (5,000 iterations) using the software package MLPowSim (Version 1.0 Beta 1; Browne, Golalizadeh-Lahi, & Parker, 2009) indicated that the sample sizes for the person (603 participants), day (14 days per person), and moment (3 times per day) levels in the current study provided adequate power for detecting small-size correlations at the person ($1-\beta > .99$), day ($1-\beta > .99$), and moment levels ($1-\beta = .84$).

Participants ranged in age from 18 to 63 ($M = 28.54$, $SD = 8.87$) and consisted of college students (33.7%), full- or part-time workers (44.7%), homemakers (7.8%), self-employed (2.5%), unemployed (4.5%), and other (6.8%). Of the participants, 70.5% were unmarried, whereas 29.5% were married.

Procedure

When signing up for the study online, participants completed a demographic survey including age, gender, marital status, level of education, job, and residential area. Two to seven days after registration, the experience-sampling survey began. Participants responded to experience-sampling measures via their own smartphones for 2–4 weeks: 72 participants received ESM measures for 4 weeks, 91 for 3 weeks, and 440 for 2 weeks. Three times each day, participants received an SMS containing a hyperlink that directed them to an online survey. They received signaling texts between 8:00 a.m. and 10:59 p.m. This time window was divided into three 5-hr intervals, with one notification presented at a random time within each interval. Times for the notifications were randomized for each participant everyday. The mean compliance rate in the study, which was computed by dividing the number of ESM measures answered by the number of ESM measures requested during ESM survey periods, was 80.53%.¹ Participants were given approximately US\$30 in exchange for their participation.

Experience-Sampling Measures

At each assessment, participants first indicated their levels of happiness (How are you feeling right now?; Killingsworth & Gilbert, 2010) and meaning (How meaningful do you feel right now?; Machell et al., 2015) that they felt at the present moment on a continuous sliding scale from *very bad/very meaningless* (0) to *very good/very meaningful* (100). The order of the two questions was randomized for each participant during each assessment. Subsequently, participants reported the activities that they were engaging in (What are you doing right now?) by choosing one or more among 35 activities (see Table 1), adapted from the activity lists used in previous research (Kahneman et al., 2004; Killingsworth & Gilbert, 2010; White & Dolan, 2009). If participants could not find an adequate activity on the list, they could answer “other” and provide a self-generated response. Next, participants were asked to answer a mind-wandering question (Are you thinking about something irrelevant to the activity that you are currently engaging in?) with “yes” or “no,” as in Killingsworth and Gilbert (2010). Finally, participants indicated whether they were interacting with someone (Are you interacting with someone right now?) by answering yes or no. If they responded yes, they were asked to indicate their interaction partner (With whom are you interacting right now?) by selecting one or more among 10 interaction partner options (see Table 2). As in the activity question, participants could answer other and provide a self-generated answer if their interaction partner did not fall into one of the given options. The total number of ESM responses was 24,430; the average numbers of responses per participant for the 2-week, 3-week, and 4-week ESM studies were 34.63 ($SD = 5.83$, range = 16–42), 47.74 ($SD = 7.49$, range = 28–60), and 67.36 ($SD = 14.87$, range = 36–87), respectively.

Table 1. Descriptive Statistics of Happiness and Meaning Across Daily Activities and Results of the Multivariate Multilevel Model Predicting Happiness and Meaning From Daily Activities.

Daily Activities	Happiness					Meaning				
	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value
Caring for one's children	66.91	20.13	.053	[.010, .096]	.032	73.90	20.23	.129	[.090, .168]	>.001
Commuting/traveling	59.15	21.84	-.030	[-.052, -.008]	.014	57.66	23.34	-.035	[-.057, -.013]	.005
Cooking	68.09	17.81	.089	[.036, .142]	.002	75.50	18.19	.167	[.118, .216]	>.001
Dating	77.83	21.45	.265	[.220, .310]	>.001	75.61	20.53	.255	[.210, .300]	>.001
Doing housework	61.48	19.21	-.013	[-.048, .022]	.524	67.03	20.89	.050	[.017, .083]	.006
Drinking	72.35	21.91	.119	[.070, .168]	>.001	65.36	23.57	.029	[-.024, .082]	.034
Eating	68.86	19.39	.101	[.081, .121]	>.001	67.75	20.45	.098	[.078, .118]	>.001
Exercising	74.46	18.98	.272	[.227, .317]	>.001	77.81	17.70	.340	[.297, .383]	>.001
Grooming/self-caring	63.75	19.52	.090	[.055, .125]	>.001	62.48	19.87	.046	[.013, .079]	.013
Listening to music	63.60	20.35	.071	[.038, .104]	>.001	61.56	21.96	.020	[-.015, .055]	.330
Listening to the radio	65.18	17.08	.134	[.032, .236]	.018	71.34	19.57	.048	[-.048, .144]	.391
On the phone (calls)	59.89	24.82	-.053	[-.108, .002]	.087	66.00	23.68	.019	[-.024, .062]	.453
Other	58.18	26.39	-.092	[-.143, -.041]	.001	66.74	26.05	.065	[.020, .110]	.011
Playing	72.40	19.11	.195	[.152, .238]	>.001	69.92	21.23	.152	[.113, .191]	>.001
Playing a game	61.63	21.27	.032	[-.009, .073]	.160	44.73	24.24	-.278	[-.327, -.229]	>.001
Praying/worshipping	73.16	19.29	.186	[.133, .239]	>.001	82.85	18.00	.381	[.332, .430]	>.001
Reading	64.63	18.99	.068	[.023, .113]	.006	62.48	22.49	.057	[.016, .098]	.015
Relaxing/nothing special	58.16	21.09	-.037	[-.064, -.010]	.020	49.95	21.98	-.164	[-.195, -.133]	>.001
Shopping	68.76	19.92	.107	[.064, .150]	>.001	66.71	21.96	.060	[.021, .099]	.007
Sleeping	54.82	20.87	-.097	[-.130, -.064]	>.001	52.17	23.61	-.153	[-.188, -.118]	>.001
Smoking	57.87	25.00	-.108	[-.22, .006]	.094	56.55	24.93	-.113†	[-.233, .007]	.094
Social media	58.90	19.35	-.007	[-.050, .036]	.805	49.61	23.71	-.156	[-.203, -.109]	>.001
Socializing	73.35	19.32	.165	[.136, .194]	>.001	73.12	19.33	.172	[.145, .199]	>.001
Staff party	63.43	23.04	.043	[-.043, .129]	.391	56.20	22.71	-.109	[-.193, -.025]	.019
Studying	59.03	21.77	-.019	[-.048, .010]	.258	71.48	20.65	.262	[.233, .291]	>.001
Taking a class	56.10	19.42	-.040	[-.073, -.007]	.035	66.36	20.61	.226	[.187, .265]	>.001
Taking a trip	81.76	18.16	.305	[.246, .374]	>.001	84.99	14.93	.350	[.287, .413]	>.001
Taking a walk	75.79	18.96	.207	[.133, .281]	>.001	74.56	19.47	.158	[.089, .227]	>.001
Talking/conversation	69.97	20.18	.104	[.080, .128]	>.001	67.46	21.09	.060	[.038, .082]	>.001
Texting	61.81	22.30	-.037	[-.072, -.002]	.053	60.26	23.72	-.016	[-.045, .013]	.363
Using a computer	58.91	19.66	-.015	[-.042, .012]	.345	51.23	23.38	-.150	[-.181, -.119]	>.001
Visiting a hospital	54.19	23.87	-.226	[-.304, -.148]	>.001	73.82	20.34	.139	[.066, .212]	>.001
Volunteering	71.57	20.84	.157	[.071, .243]	.001	81.21	16.48	.269	[.189, .349]	>.001
Watching a movie	70.04	20.97	.163	[.102, .224]	>.001	64.37	21.37	.069	[.012, .126]	.028
Watching TV	63.46	19.01	.026	[.001, .051]	.068	52.26	22.87	-.204	[-.231, -.177]	>.001
Working	56.66	20.41	-.097	[-.124, -.070]	>.001	64.72	21.88	.071	[.044, .098]	>.001
Mind-wandering	58.04	22.06	-.105	[-.121, -.089]	>.001	59.55	23.79	-.058	[-.070, -.046]	>.001

Note. Mean and SD represent the average and the standard deviation, respectively, of happiness or meaning that participants reported while engaging in each daily activity. *b* is the unstandardized coefficient in the simultaneous multivariate multilevel model. The *b* coefficient indicates the degree to which engaging in the daily activity adds to or subtracts from the averages of happiness and meaning, after controlling for other between- and within-person variables. The *p* values reported in the table are adjusted for multiple comparisons using Benjamini and Hochberg's (1995) method. Daily activities are ordered alphabetically. CI represents the confidence interval.

Statistical Analysis

Since the experience sampling data had a hierarchical structure, we used multilevel linear modeling for all analyses. In this study, we had three levels of nesting: the moment level (Level 1), the day level (Level 2), and the person level (Level 3). The primary purpose of the present research lay not only in examining the effects of predictors in each level on happiness and meaning but also in investigating the relationship between happiness and meaning in each level and comparing the strength of the effects that the same explanatory variable had on happiness and meaning. Therefore, we constructed a multivariate

multilevel model in which happiness and meaning were treated as outcomes together and were modeled as a function of person-, day-, and moment-level explanatory variables (Hox, 2010; Snijders & Bosker, 1999). In our analyses, *z*-transformed scores of happiness and meaning were used to aid interpretation of the differences across predictive variables. For multivariate multilevel analyses, we used the software package MLwiN, Version 2.1 (Rasbash, Charlton, Browne, Healy, & Cameron, 2009), with iterative generalized least squares estimation.

All dichotomous variables (i.e., gender, marital status, daily activities, mind-wandering, and interaction partners) and categorical variables (i.e., day of week and time of day)² were

Table 2. Descriptive Statistics of Happiness and Meaning Across Interaction Partners and Results of the Multivariate Multilevel Model Predicting Happiness and Meaning from Interaction Partners.

Interaction Partner	Happiness					Meaning				
	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value
Boss/professor	58.59	21.67	-.065	[-.104, -.026]	.002	63.21	22.45	-.029	[-.072, .014]	.250
Business partner	60.41	21.33	.009	[-.038, .056]	.769	70.64	22.23	.038	[-.005, .081]	.120
Child	69.84	19.90	.034	[-.011, .079]	.172	75.00	20.13	.032	[-.005, .069]	>.001
Coworker/classmate	63.12	20.71	.040	[.018, .062]	.001	64.74	21.71	.025	[.003, .047]	.046
Friend	67.56	20.76	.109	[.091, .127]	>.001	65.50	21.94	.041	[.023, .059]	>.001
Other	66.38	22.88	.055	[.000, .110]	.074	73.25	23.46	.086	[.037, .135]	.001
Parent	67.21	20.97	.058	[.025, .091]	.002	65.70	23.20	.073	[.042, .104]	>.001
Romantic partner	70.83	23.49	.125	[.086, .164]	>.001	68.31	24.49	.092	[.057, .127]	>.001
Sibling/relative	68.52	21.87	.078	[.041, .115]	>.001	66.07	24.30	.043	[.010, .076]	.019
Spouse	70.49	12.59	.051	[.018, .084]	.006	72.29	21.90	.022	[-.009, .053]	.220
Subordinate	62.03	17.60	.078	[.025, .131]	.008	70.45	17.47	.093	[.042, .144]	.001

Note. Mean and SD represent the average level and the standard deviation, respectively, of happiness or meaning that participants reported while interacting with each partner. *b* is the unstandardized coefficient in the simultaneous multivariate multilevel model. The *b* coefficient indicates the degree to which interacting with the partner adds to or subtracts from the averages of happiness and meaning, after controlling for other between- and within-person variables. The *p* values reported in the table are adjusted for multiple comparisons using Benjamini and Hochberg's (1995) method. Interaction partners are ordered alphabetically. CI represents the confidence interval.

effect coded. Effect coding was chosen over dummy coding because it allowed estimating coefficients of predictors that reflect how much each predictor adds to or subtracts from the grand means of happiness and meaning in daily life (Cohen, Cohen, West, & Aiken, 2003; Hox, 2010). Each option for both activity and interaction partner was separately treated as a dichotomous variable (-1: not engaging/not interacting; 1: engaging/interacting) because participants could engage in multiple activities or interact with multiple partners at a time, indicating that these options were not mutually exclusive.

To ease interpretation and reduce multicollinearity, age (a continuous variable at the person level) was grand mean centered. On the other hand, daily activity, mind-wandering, and interaction partner (variables at the moment level) were person centered. This was because the relationships between these within-person variables and the levels of happiness and meaning were potentially confounded by between-person differences in these variables. For example, socializing might lead an individual to experience higher happiness and meaning than usual (a within-person association). Alternatively, it might be that individuals who experienced higher levels of happiness and meaning in general socialized more frequently during the ESM study period than others (a between-person association). Person centering removed the potential between-person association, which allowed us to isolate individual within-person effects on happiness and meaning.³

Results

We first estimated the variance partition coefficient (Goldstein, 2003) at the moment, day, and person levels, with the unconditional multivariate multilevel model in which no predictors were entered, to investigate the relative portions of variance of happiness and meaning in each level. The results indicated

that the majority of variance in both happiness (71.3%) and meaning (71.6%) was at the moment level; a considerable percentage of happiness (16.9%) and meaning (20.8%) at the person level; and the smallest portions of happiness (11.8%) and meaning (7.5%) at the day level. These findings supported the use of multilevel modeling as appropriate, indicating that there was both between- and within-person variability in happiness and meaning to be potentially explained. Moreover, the fact that the happiness and meaning ratings had significant within-person variability suggests that happiness and meaning fluctuate within-person across daily events and over time.

Relationship Between Happiness and Meaning in Everyday Life

We estimated the within-person association between happiness and meaning, using multilevel modeling with person-centered happiness and meaning. The within-person correlation coefficient was .41. The medium size of this positive correlation suggests that happiness and meaning in everyday life are interrelated but distinguishable even at the momentary level.

Furthermore, we examined the degree to which the momentary experiences of happiness and meaning were related at each level. The estimated correlations at the moment, day, and person levels were .36, .75, and .75, respectively. While happiness and meaning in everyday life were positively correlated at all levels, the correlation at the moment level was considerably weaker than at the day and person levels.

Antecedents of Happiness and Meaning in Everyday Life

We generated a conditional multivariate multilevel model in which all predictors at the three levels were simultaneously entered to estimate the unique contributions of each predictor

to reported happiness and meaning. To avoid convergence or computation problems caused by an overparameterized model, we tested whether the slopes of predictors at the moment and day levels had a significant random variance component on a variable-by-variable basis. The effects of predictors were treated as random if their random variance components were significant; otherwise, they were treated as fixed (Hox, 2010).

We investigated the effects of both between-person variables and within-person variables on happiness and meaning. First, we examined whether demographic variables (i.e., between-person variables), such as age, gender, and marital status could predict differences at the average levels of happiness and meaning across individuals, after controlling for within-person predictors. In addition, we examined whether daily event-related variables (i.e., within-person variables), including daily activity, mind-wandering, interaction partner, day-of-week, and time of day, could predict momentary experiences of meaning and happiness within an individual. To control for the probability of making a Type 1 error on multiple comparisons, we used the False Discovery Rate method (Benjamini & Hochberg, 1995; Benjamini & Yekutieli, 2001). Corrected p values are presented in the text and tables.

Demographic variables. We examined whether the average levels of happiness and meaning in daily life varied as a function of age, gender, and marital status, after controlling for all other predictors at the day and moment levels. Multilevel modeling analyses revealed that age positively predicted the average experience of happiness, $b = .009$, $SE = .003$, $p = .005$, and meaning, $b = .014$, $SE = .003$, $p < .001$, showing that older participants experienced more happiness and meaning, on average, than younger participants. Then, a Wald test was conducted to examine whether the two coefficients of age significantly differed on happiness and meaning. The results suggested that age was more strongly linked with meaning than with happiness, $\chi^2 = 6.73$, $p = .009$. Next, gender (−1: female; +1: male) was marginally related to the average levels of both happiness, $b = -.035$, $SE = .018$, $p = .063$, and meaning, $b = -.038$, $SE = .019$, $p = .077$. Specifically, female participants experienced higher average levels of happiness and meaning in their daily lives than did male participants. Finally, we found that marital status (−1: unmarried; +1: married) was significantly associated with the average level of momentary meaning, $b = .068$, $SE = .028$, $p = .029$, which indicated that marriage positively predicted the average level of reported meaning. On the other hand, marital status was irrelevant to happiness, $b = .007$, $SE = .027$, ns .

Daily activities. Figure 1 illustrates the relative frequencies of activities and the standardized coefficients of daily activities on happiness and meaning. Each daily activity was differentially related to momentary levels of happiness and meaning (see Table 1). More than half of the activities (20 of the 36 activities) yielded significant correlations with both happiness and meaning in the same direction, suggesting that daily predictors of happiness and meaning considerably overlap.

However, it was not unusual for individuals to experience happiness and meaning in opposite directions during certain activities. For instance, watching TV, playing a game, and a staff party all had nonsignificant positive trends with happiness but had significant negative relationships with meaning, $\chi^2s > 9.69$, $ps < .01$. In contrast, taking a class, visiting a hospital, and working had significant positive relationships with meaning but were negatively related to happiness, $\chi^2s > 72.68$, $ps < .001$. In a similar vein, doing housework and studying were significantly and positively correlated with meaning but had nonsignificant negative trends with happiness, $\chi^2s > 10.67$, $ps < .01$.

In addition, the extent to which some activities were related with happiness and meaning was significantly different, even if they were predictive of happiness and meaning in the same direction. For example, drinking, grooming/self-caring, shopping, listening to music, talking/conversation, and watching a movie were more happiness-oriented activities; they had significantly positive relationships or nonsignificant positive trends with both happiness and meaning but had considerably stronger effects on happiness than meaning, $\chi^2s > 3.89$, $ps < .05$. Conversely, caring for one's children, cooking, exercising, praying/worshipping, and volunteering were positively and significantly related with both happiness and meaning. However, their relationships with meaning were much stronger than with happiness, $\chi^2s > 5.54$, $ps < .05$. This indicated that these activities were more meaning-oriented. Meanwhile, using a computer and social media were negatively correlated with both happiness and meaning, but their negative effects were significant only for meaning, rather than happiness, $\chi^2s > 29.92$, $ps < .001$. Taken together, our results support the notion that some activities may lead to a happy life while others may lead to a meaningful life.

Mind-wandering. Consistent with previous research (Killingsworth & Gilbert, 2010), mind-wandering was negatively related to both happiness ($b = -.105$, $SE = .008$, $p < .001$) and meaning ($b = -.058$, $SE = .006$, $p < .001$), even after controlling for the types of daily activities, interaction partners, time of day, and day of week. In other words, during mind-wandering, participants experienced not only less happiness but also less meaning. Furthermore, a comparison of the relative effects revealed that mind-wandering was more negatively correlated with happiness than with meaning, $\chi^2 = 33.57$, $p < .001$, suggesting that mind-wandering is more damaging to happiness than to meaning during daily activities.

Interaction Partners

Participants experienced more happiness and meaning while interacting with others than while being alone (for happiness, $b = .092$, $SE = .008$, $p < .001$; for meaning, $b = .061$, $SE = .007$, $p < .001$). The correlation of social interaction was considerably larger with happiness than that with meaning, $\chi^2 = 12.65$, $p < .001$. This finding suggests that being alone is less detrimental to meaning than happiness.

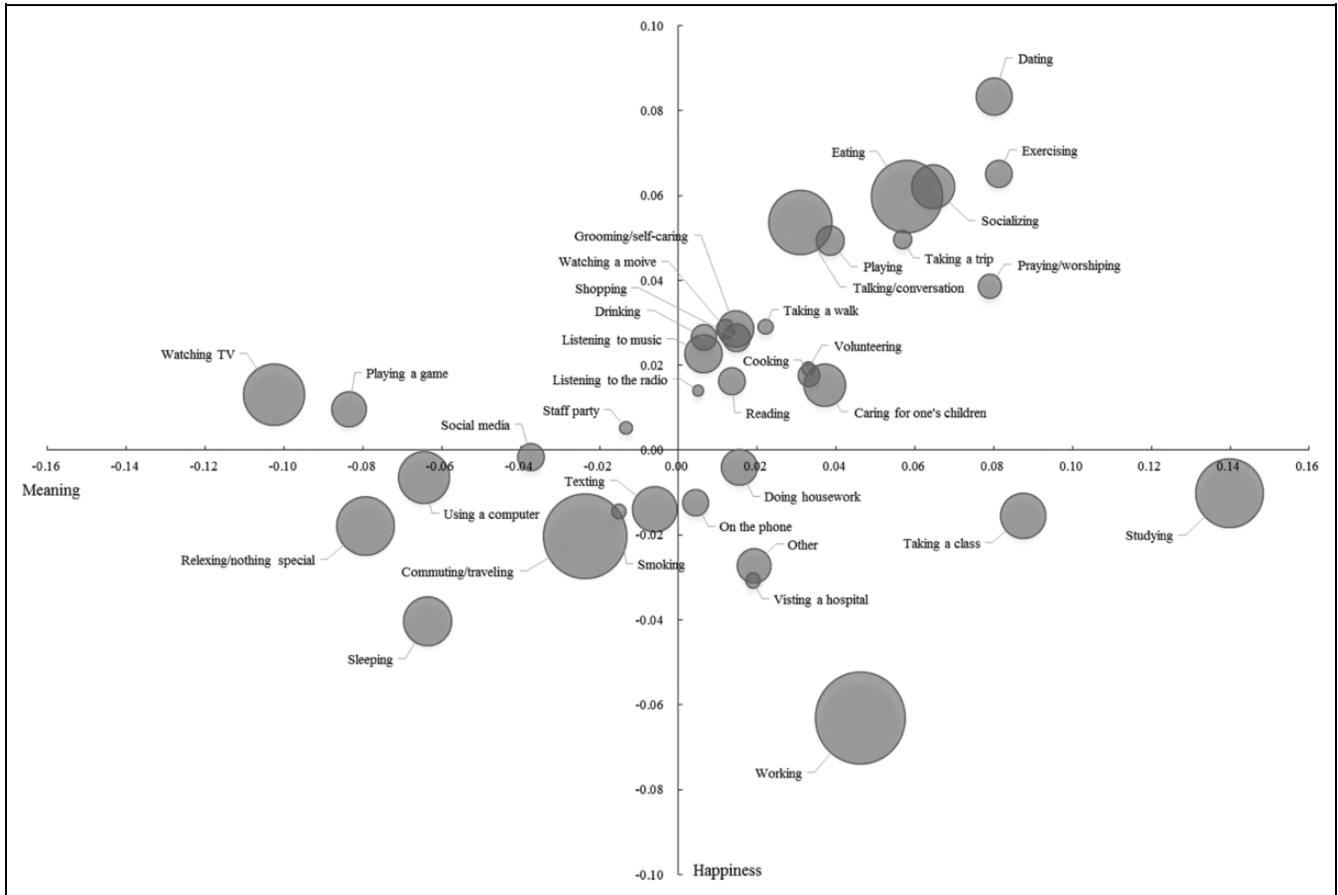


Figure 1. Standardized coefficients (β s) of daily activities on happiness and meaning. The x-axis and y-axis represent standardized coefficients on meaning and happiness, respectively. The size of the bubbles represents the overall frequency of occurrence of each daily activity.

Next, we examined the relationship between the type of interaction partners and happiness and meaning (see Table 2). As Figure 2 shows, all interaction partners, except boss/professor, were positively correlated with happiness and meaning in everyday life, although some correlations did not approach significance. Unlike other partners, interaction with a boss/professor was significantly negatively related to happiness ($b = -.105$, $SE = .008$, $p = .002$), suggesting that hierarchical relationships may be detrimental to happiness for those in lower ranking positions.

Time-of-Day and Day-of-Week

As Figure 3 shows, average levels of happiness and meaning varied across times and days. Multilevel analysis revealed that the day of week and the time of day were significant predictors of happiness, for day of week, $\chi^2(6) = 25.41$, $p < .001$; for time of day, $\chi^2(14) = 35.56$, $p = .001$, and meaning in everyday life, for day of week, $\chi^2(6) = 17.27$, $p = .008$; for time of day, $\chi^2(14) = 25.41$, $p = .002$, even after controlling for daily activities and social interaction that individuals engaged in (see Tables 3 and 4). Specifically, Wednesday was the least happy and least meaningful day during a given week (for happiness, $b = -.036$, $SE = .014$, $p = .019$; for meaning, $b = -.040$, $SE = .013$, $p = .004$), whereas Friday and Saturday were the

happiest days of the week ($bs > .038$, $ps < .020$). Monday was associated with happiness and meaning in opposite directions; specifically, people experienced lower happiness ($b = -.031$, $SE = .014$, $p = .052$) but higher meaning ($b = .026$, $SE = .013$, $p = .070$), compared with other days of the week. It seems that going back to the routine on Monday may decrease happiness, but the sense of having a fresh start (Dai, Milkman, & Riis, 2014) at the beginning of a new week may enhance meaning.

Coefficients of the time of day for happiness and meaning were significantly different. Morning times (i.e., 08:00 to 10:59) were more negatively correlated with the level of happiness than were other times, $\chi^2 = 8.33$, $p = .004$, while late evening times (i.e., 20:00 to 22:59) were more positively correlated with the level of happiness, $\chi^2 = 23.96$, $p < .001$, controlling for other variables. On the other hand, afternoon times (i.e., 14:00 to 15:59) were more negatively associated with the experience of meaning than were other times, $\chi^2 = 12.20$, $p < .004$, whereas late evening times (i.e., 20:00 to 22:59) were more positively correlated with meaning, $\chi^2 = 8.05$, $p = .005$.

Discussion

In the course of a day, individuals engage in a variety of activities and interact with an assortment of individuals,

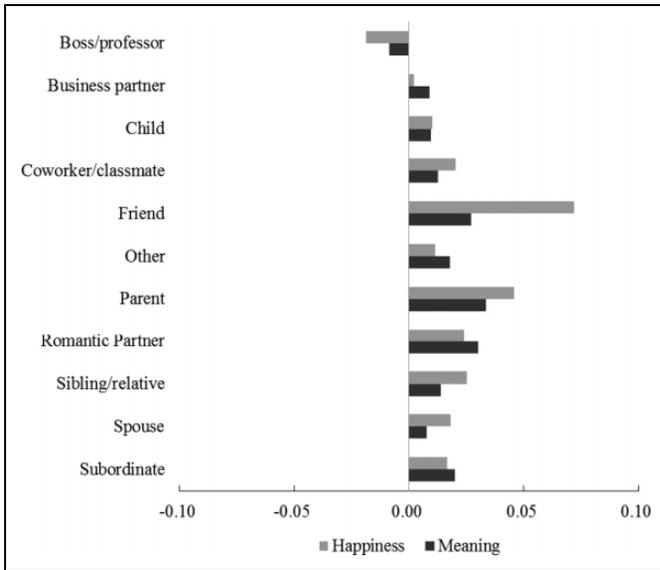


Figure 2. Standardized coefficients (β s) of interaction partners on happiness (gray bars) and meaning (black bars). The numbers along the x-axis refer to the values of standardized coefficients. Interaction partners are ordered alphabetically.

experiencing different levels of happiness and meaning, moment to moment. However, the role of contextual factors, such as daily activities, interaction partner, day of week, and time of day, in determining momentary happiness and meaning has remained largely unexamined. Thus, in the current study, we not only measured momentary levels of happiness and meaning but also explored the effects of contextual and demographic variables on happiness and meaning by tracking individuals' daily experiences.

Our results revealed that the degree to which individuals experienced happiness and meaning in their daily lives was not static; rather, it was dynamic and fluctuated across daily events and over time. Momentary happiness and meaning were positively interrelated with each other, which was in line with previous findings that trait-like happiness and meaning in life are strongly associated (Baumeister, Vohs, Aaker, & Garbinsky, 2013; McGregor & Little, 1998). A novel aspect of the present work was the estimation of the relationship between happiness and meaning at the moment, day, and person levels. Our findings showed that as compared with correlations at the day and person levels, the correlation at the moment level was considerably weaker. This suggests that on a momentary basis, individuals frequently experience happiness and meaning separately and often even experience the two in opposite directions.

Demographic variables such as age, gender, and marital status were significantly predictive of average momentary levels of happiness and meaning, after controlling for within-person variables (i.e., variables at the day and moment levels). Older, female, and married people experienced, on average, greater happiness and meaning in their daily lives than did young, male and unmarried people.

Different daily events were correlated with different levels of happiness and meaning, and people often experienced

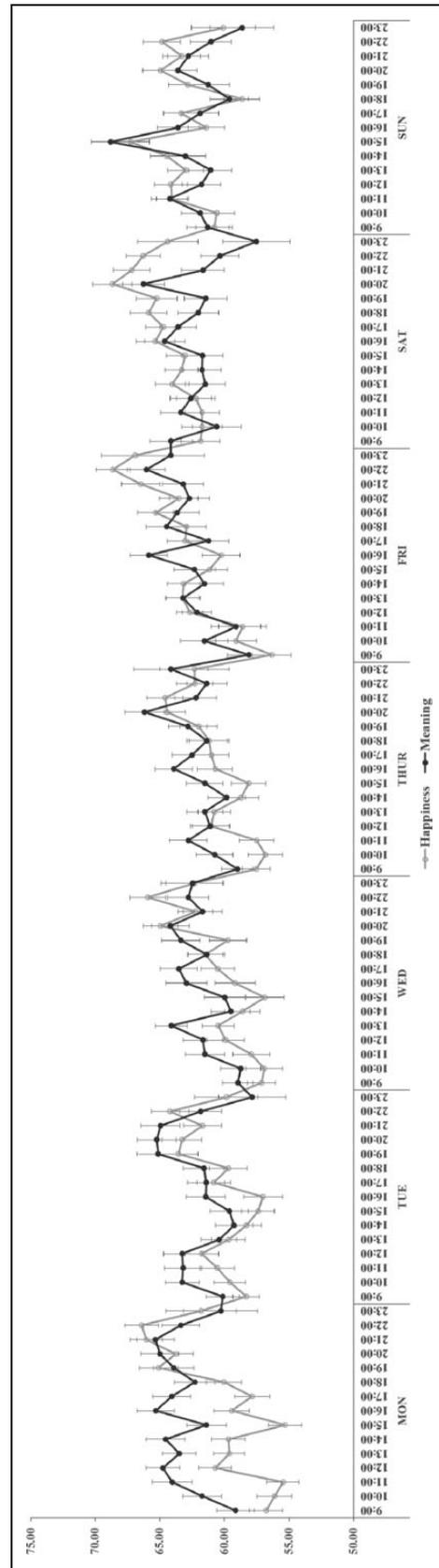


Figure 3. Means of happiness (gray line) and meaning (black line) over the course of the week. The numbers along the x-axis refer to the time of day. Error bars represent the standard error.

Table 3. Descriptive Statistics of Happiness and Meaning Across Days of the Week and Results of the Multivariate Multilevel Model Predicting Happiness and Meaning from Day of Week.

Interaction Partner	Happiness					Meaning				
	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value
Monday	60.22	20.98	-.031	[-.058, -.004]	.052	63.40	22.94	.026	[.001, .051]	.070
Tuesday ^a	60.33	21.08	—	—	—	62.03	24.30	—	—	—
Wednesday	60.19	21.64	-.036	[-.063, -.009]	.019	61.72	23.23	-.040	[-.065, -.015]	.004
Thursday	60.47	21.58	-.012	[-.039, .015]	.448	61.89	23.36	-.016	[-.041, .009]	.280
Friday	62.86	21.54	.038	[.009, .067]	.018	62.68	23.49	.009	[-.016, .034]	.572
Saturday	64.44	21.91	.050	[.021, .079]	.002	62.38	24.37	.023	[-.004, .050]	.127
Sunday	63.09	21.13	.003	[-.026, .032]	.870	62.46	23.74	.012	[-.015, .039]	.449

Note. Mean and SD represent the average level and the standard deviation, respectively, of happiness or meaning that participants reported on each day of the week. *b* is the unstandardized coefficient in the simultaneous multivariate multilevel model. The *b* coefficient indicates the degree to which the day of week adds to or subtracts from the averages of happiness and meaning, after controlling for other between- and within-person variables. The *p* values reported in the table are adjusted for multiple comparisons using Benjamini and Hochberg's (1995) method. CI represents the confidence interval.

^aTuesday was the base group of the day of week.

Table 4. Descriptive Statistics of Happiness and Meaning Across Times of Day and Results of the Multivariate Multilevel Model Predicting Happiness and Meaning From Time of Day.

Interaction Partner	Happiness					Meaning				
	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value	Mean	SD	<i>b</i>	95% CI	<i>p</i> Value
9:00 ^a	58.21	20.35	-.048	[-.085, -.011]	.020	59.94	23.21	-.005	[-.040, .030]	.831
10:00	58.66	20.57	-.032	[-.073, .009]	.171	61.31	22.73	-.003	[-.042, .036]	.900
11:00	59.48	20.93	-.015	[-.054, .024]	.506	62.78	23.36	.043	[.006, .080]	.040
12:00	61.90	21.30	.012	[-.025, .049]	.868	62.50	23.27	-.030	[-.065, .005]	.120
13:00	61.60	20.57	.014	[-.023, .051]	.521	62.23	22.76	-.003	[-.038, .032]	.888
14:00	60.98	20.42	.002	[-.035, .039]	.090	61.37	23.66	-.063	[-.098, -.028]	.001
15:00	59.67	21.46	-.028	[-.067, .011]	.210	62.13	23.68	-.032	[-.069, .005]	.117
16:00	60.40	21.85	-.016	[-.055, .023]	.488	63.97	22.75	.006	[-.031, .043]	.806
17:00 ^b	61.66	21.11	—	—	—	62.62	23.05	—	—	—
18:00	61.46	22.07	-.023	[-.062, .016]	.318	61.77	23.67	-.018	[-.055, .019]	.391
19:00	63.32	22.00	-.003	[-.044, .038]	.902	63.12	23.53	.014	[-.023, .051]	.531
20:00	64.74	22.07	.043	[.004, .082]	.053	64.72	23.32	.041	[.004, .078]	.046
21:00	64.51	21.98	.035	[-.004, .074]	.112	63.18	24.33	.007	[-.030, .044]	.747
22:00	65.55	21.93	.082	[.043, .131]	>.001	62.38	24.48	.043	[.006, .080]	.046
23:00	62.62	22.90	-.026	[-.091, .039]	.488	60.72	24.14	.015	[-.046, .076]	.683

Note. Mean and SD represent the average level and the standard deviation, respectively, of happiness or meaning that participants reported at each time of day. *b* is the unstandardized coefficient in the simultaneous multivariate multilevel model. The *b* coefficient indicates the degree to which the time of day adds to or subtracts from the averages of happiness and meaning, after controlling for other between- and within-person variables. The *p* values reported in the table are adjusted for multiple comparisons using Benjamini and Hochberg's (1995) method. CI represents the confidence interval.

^a9:00 was 08:00 to 09:59. ^b17:00 was the base group of time of day.

happiness and meaning independently of each other during a single event. People experienced high happiness but low meaning (vs. high meaning but low happiness) while engaging in happiness-loaded (vs. meaning loaded) daily events such as watching TV, playing a game, and drinking (vs. working, taking a class, and doing housework). In short, people often experience either happiness or meaning in their everyday lives at the expense of the other. These findings can address an important limitation of the previous literature, which has overlooked the meaning garnered from daily events on a momentary basis. If one takes only happiness into account, for example, becoming parents seems to be a poor choice for married people. While caring for their children, parents experience lower levels of

happiness than during other activities that they may otherwise take part in, such as dating, drinking, or watching a movie. However, parents can experience greater levels of meaning while caring for their children than engaging in these happiness-oriented activities, which may offset the opportunity cost in momentary happiness. Hence, our findings suggest that judging the impact of an activity on a person's life must be based on the consideration of both happiness and meaning rather than on one or the other.

It is noteworthy that observed effect sizes between activities and momentary levels of happiness and meaning were, in general, small. This finding suggests that engaging in a certain daily event for 1 time unlikely cause happiness and meaning

to vary dramatically from their averages. Given that the current study considered mundane events, rather than major life events, these small effect sizes are not surprising. However, as the small changes occur frequently in daily life, the cumulative effects of which may be considerable, these effect sizes are not negligible. Furthermore, as recent works have shown that changes in short-term states during a major life transition influence global traits (Bleidorn, 2012; Wilt, Bleidorn, & Revelle, 2016), small changes in everyday life for the long term may have impacts on the global levels of happiness and meaning.

Another important contribution of the present study was to examine the daily well-being of East Asians. This rare non-Western ESM study allows us not only to expand the cultural scope of this area of study to an East Asian culture but also to examine, at least indirectly, whether previous findings from Western ESM studies hold in a different culture. In particular, our results can be compared with Killingsworth and Gilbert's findings (2010) because of the similarity in the ESM procedure. Our results suggest that the key finding from Killingsworth and Gilbert—"a wandering mind is an unhappy mind"—is also true in East Asian cultures. In addition, we selected 20 of the 22 daily activities from Killingsworth and Gilbert's study (2010) that overlapped with the activities in our study, ranked them in order of the mean happiness that participants reported during each of the activities, and compared the two ranks. The result revealed that the daily activities were ordered similarly in both cultures, $r_s = .832$, $p < .001$, suggesting that Westerners and East Asians experience similar levels of happiness during daily activities. Combined, we found that mind-wandering and daily activities likely have similar impacts on the momentary experiences of happiness in both Western and East Asian cultures. However, there are few Western ESM studies with which our other results, particularly regarding meaning in daily life, can be compared. Hence, caution should be exercised in generalizing our findings regarding meaning to other cultures. It is important for future research to examine the generalizability of our findings further across different cultures using cross-cultural ESM studies.

Although our work expands the understanding of daily well-being to examine, on a momentary basis, the relationships among happiness, meaning, and daily events, several limitations in the present work should be considered for future research. First, in our ESM study, we measured happiness and meaning by asking participants to indicate how good they felt and how meaningful they felt, respectively. Given that happiness and meaning are multifaceted in nature (Diener, Napa Scollon, & Lucas, 2003; Leontiev, 2005), some might argue that these single-item measures do not adequately measure happiness or meaning. Nevertheless, most ESM studies, including the present study, have used single-item measures for a practical reason: A long ESM survey would create response burden and fatigue in participants which in turn would lower response rates. However, it is important for future research to generalize these findings with multiple items for happiness (e.g., calmness, contentedness, and satisfaction) and for meaning (e.g., purpose of life, personal significance, and coherence).

In addition, we found that happiness and meaning were two distinct constructs at the momentary level, even though they were positively interrelated. Yet, the present study could not uncover the mechanisms underlying momentary experiences of happiness and meaning. Previous literature has proposed that "happiness is natural, meaning is cultural" (Baumeister et al., 2013), arguing that individuals' level of global happiness depends on the extent to which their needs and wants are satisfied, whereas global meaningfulness depends on their evaluation of the extent to which their goals and values, learned from their culture, are achieved. In this regard, we speculate that momentary happiness may be based on an affective reaction to daily events, whereas momentary meaning may be based on a cognitive evaluation of daily events. Our findings provide some support for this speculation; specifically, people experienced greater happiness, rather than meaning, when they engaged in activities offering instant pleasure, such as watching TV, listening to music, and drinking. However, the reverse pattern emerged while people took part in activities involving fulfilling obligations or pursuing long-term goals, but often evoking negative affect, such as working, taking a class, and doing housework. Additional research is necessary to systematically examine this possibility.

In closing, our findings suggest that the extent to which people experience happiness and meaning in everyday life varies as a function of the daily events that they choose to engage in. Therefore, people themselves can cultivate happiness and meaning in their everyday lives by intentionally spending their discretionary time on happiness-loaded or meaning-loaded daily events.

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Notes

1. The compliance rates for the 2-week, 3-week, and 4-week experience sampling method surveys were 82.44%, 75.77%, and 74.85%, respectively. No significant period-length effect was found in our main analyses.
2. The categories "Tuesday" and "5:00 p.m." were chosen as the base group of the day-of-week and the time of day, respectively, for which comparisons with the grand mean cannot be directly computed because their means were close to the grand means.
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