

# Limited Time Perspective Increases the Value of Calm

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Previous findings indirectly suggest that the more people perceive their time in life as limited, the more they value calm. No study, however, has directly tested this hypothesis. To this end, using a combination of survey, experience sampling, and experimental methods, we examined the relationship between future time perspective and the affective states that people ideally want to feel (i.e., their “ideal affect”). In Study 1, the more people reported a limited time perspective, the more they wanted to feel calm and experience other low-arousal positive states. In Study 2, participants were randomly assigned to a *limited time* or an *expanded time* condition. Participants in the limited time condition reported valuing calm and other low arousal positive states more than those in the expanded time condition. We discuss the implications of these findings for broadening our understanding of the factors that shape how people ideally want to feel, and their consequences for decision making.

*Keywords:* ideal affect, calm, enthusiastic, future time perspective, decision making

Over the course of human life, people move, graduate, fall ill, and age. These events alter people’s perception of time left in life (e.g., Carstensen, 2006; Fung, Carstensen, & Lutz, 1999; Zhang, Ersner-Hersfield, & Fung, 2010), which may in turn influence whether they savor the present or look to the future. In this paper, we examine whether future time perspective alters the affective states that people ideally want to feel, or their “ideal affect.” Although previous research has indirectly suggested that focusing on the present and recognizing that one’s time in life is limited alters people’s ideal affect (Mogilner, Kamvar, & Aaker, 2011; Koopmann-Holm, Sze, Ochs, & Tsai, 2013), no studies have directly tested this hypothesis. Because ideal affect predicts people’s conceptions of health and well-being, the types of leisure activities they engage in, and even the decisions they make (Tsai, 2007), examining the links between time perspective and ideal affect should advance our understanding of one source of individual differences in emotional life. Therefore, we conducted two studies that examined the links between future time perspective and ideal affect using survey, experience sampling, and experimental methods. Prior to describing the studies, we present Affect Valuation Theory, the framework motivating the present research.

## Affect Valuation Theory (AVT)

AVT proposes that ideal affect (i.e., the degree to which people ideally want to feel specific states) is distinct from actual affect (i.e., the degree to which people actually feel specific states) (Tsai, Knutson, & Fung, 2006; Tsai, 2007). Both ideal affect and actual affect are important for emotional life, but they serve different functions. While actual affect is an individual’s response to a particular situation (momentary actual affect) or on average (global actual affect), ideal affect is an individual’s desired or valued response to a particular situation (momentary ideal affect) or on average (global ideal affect). Based on affective circumplex models (Barrett & Russell, 1999; Larsen & Diener, 1992), we have conceptually and empirically distinguished between actual and ideal high arousal positive affective states (HAP; e.g., enthusiastic, excited, and elated) and between actual and ideal low arousal positive affective states (LAP; e.g., calm, relaxed, and peaceful) (e.g., Tsai et al., 2006; Tsai, Louie, Chen, & Uchida, 2007; Tsai, Miao, & Seppala, 2007; Tsai, Miao, Seppala, Fung, & Yeung, 2007).

AVT also proposes that cultural factors shape ideal affect more than actual affect. Extensive research has demonstrated cultural differences in ideal affect, with European Americans valuing HAP states more and LAP states less than Hong Kong Chinese (e.g., Tsai et al., 2006; Tsai, Miao, Seppala et al., 2007; Ruby et al., 2012). These cultural differences are reflected in widely distributed products including children’s storybooks and the official photos of public figures, with American cultural products having more excited and less calm content than Chinese cultural products (Tsai, Louie et al., 2007; Tsai, Chim, & Sims, 2015). We attribute these differences in ideal affect to cultural differences in interpersonal goals. In individualistic contexts like the United States, people want to “influence” others (i.e., change their circumstances to be consistent with their desires, preferences, and beliefs),

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whereas in collectivistic contexts like China, people want to “adjust” to others (i.e., change their desires, preferences, and beliefs to be consistent with their circumstances). In a series of survey and experimental studies, we found that the more individuals wanted to influence others, the more they valued HAP states, whereas the more individuals wanted to adjust to others, the more they valued LAP states, and that these cultural differences in influence and adjustment goals mediated American-Chinese differences in ideal affect (Tsai, Miao et al., 2007).

The final premise of AVT is that people’s ideal affect shapes important aspects of daily life. For instance, people’s ideal affect shapes their consumer product preferences and leisure activities (Tsai, 2007): the more people value HAP states, the more likely they are to prefer exciting versus calming lotions, drinks, and music, and to engage in physically rigorous activity. People’s ideal affect even predicts how people evaluate and respond to LAP versus HAP-focused physicians (Sims, Tsai, Koopmann-Holm, Thomas, & Goldstein, 2014; Sims & Tsai, 2015). For example, in a hypothetical scenario in which participants had to choose a new physician, they were presented with two different physicians who had similar academic backgrounds (i.e., education, specialty), but held different views of patient care (i.e., goal as a physician to enhance patient well-being by “increasing their activity levels” [HAP-focused], or goal as a physician to ensure “patient peace of mind” [LAP-focused]). The more participants valued LAP states, the more likely they were to choose the LAP-focused physician, and the more participants valued HAP states, the more likely they were to choose the HAP-focused physician. These findings held even after controlling for participants’ actual HAP and actual LAP, demonstrating that participants’ ideal affect predicted their preferences above and beyond participants’ actual affect.

### Another Source of Variation in Ideal Affect: Future Time Perspective

As mentioned above, significant research has examined the factors that shape ideal affect, with an emphasis on specific cultural ideas and practices across and within nations (e.g., Tsai et al., 2006). However, there are likely others factors that shape ideal affect, especially factors related to goals and values. In this paper, we focus on one such factor: future time perspective (FTP).

FTP refers to how much time one perceives to be left in one’s life. Individuals perceive that their time is more limited as they approach endings, and perceive their time is more expanded as they approach beginnings (Carstensen et al., 2003). People move, graduate from school, fall ill, experience social changes, and age (e.g., Fung & Carstensen, 2006; Zhang et al., 2010). All of these events trigger and can change one’s time perspective. According to Socioemotional Selectivity Theory, people set goals in the context of the amount of time they perceive remaining in their lives (Carstensen et al., 2003; Carstensen, 2006). When time horizons are perceived as long and open-ended, people prioritize accumulating new knowledge, new experiences, and new relationships as a way of acquiring information. In contrast, when time horizons are perceived as short and close-ended, people prioritize savoring the present and deepening existing relationships, as a way of maximizing emotional meaning (e.g., Carstensen et al., 2003).

We predict that when people want to accumulate new knowledge, new experiences, and new social relationships, they value

excitement and other HAP states more. In contrast, when people want to savor the present and focus on existing relationships, they value calm and other LAP states more. In part this may be because calm states signal the absence of threat, which allow feelings of safety and security necessary to savor the present moment. In contrast, excitement states are associated with acquiring goals and anticipating the future fulfillment of those goals, which are part of information seeking (Carver, 2006). Moreover, HAP states are approach-oriented, and people typically are approach oriented when they have an expanded time perspective. Conversely, LAP states are avoidance-oriented, and people typically are avoidance-oriented when they have limited time (Carver, 2006; Ebner, Freund, & Baltes, 2006; Heckhausen, 2002).

Although no studies have directly tested the links between future time perspective and ideal affect, indirect evidence supports these hypotheses. For instance, Mogilner, Aaker and Kamvar (2012) manipulated participants’ focus on the present versus future by asking them to unscramble sentences with either future- or present-related words. Participants who unscrambled sentences with present related words were more likely to associate happiness with peacefulness than excitement, while participants who unscrambled sentences with future-related words were more likely to link happiness with excitement than peacefulness. Similarly, in Koopmann-Holm and Tsai (2014), Buddhist-inspired meditation increased the value of calm. In this study, participants were randomly assigned into meditation classes, an improvisational theater class, or a no class control condition. In the meditation class conditions, participants were taught to “pay attention to the present moment;” participants in the improvisational theater classes were taught to be spontaneous and cooperative. After 8-weeks of practice, participants taking the meditation classes significantly valued LAP to a greater extent than those in the improvisational theater class and a no class control conditions. Like Mogilner et al. (2012), these findings suggest that focusing on the present increases the value of LAP. Because focusing on the present is similar to savoring the present, which is a consequence of limited time perspective, these findings provide indirect support for our argument that limited time perspective is associated with valuing LAP, whereas expanded time perspective is associated with valuing HAP.

Yet other evidence comes from the emotion and aging literature (e.g., Scheibe, English, Tsai, & Carstensen, 2013). For instance, in a study of American participants ages 18 to 93 years, Scheibe and colleagues (2013) observed an age-related increase in preference for experiencing LAP over HAP particularly in later older adulthood. Because people generally perceive time as more limited as they get older (e.g., Carstensen et al., 2003), it is possible that increased limited time perspective increased the preference for LAP over HAP states. Similarly, Mogilner, Kamvar, and Aaker (2011) analyzed 12 million personal blogs, and found that older adults were more likely to associate happiness with peacefulness than were younger adults, while younger adults associated happiness with excitement more than did their older counterparts. Again, these age differences may be due to differences in time perspective that typically accompany aging.

Although FTP is highly correlated with age, the two can be disentangled. Indeed, changing future time perspective has modified or even reversed the effects of age (e.g., Fung et al., 1999; Fung, Carstensen, & Lang, 2001; Lang & Carstensen, 2002). For

example, Fung et al. (1999) manipulated participants' future time perspective by telling them that they would either "enjoy 20 years more of life in relatively good health" (Time Expanded condition) or "emigrate to another city in a few weeks" (Time Limited condition). In the control condition (no manipulation), older adults were more likely to prefer spending time with familiar social partners than were younger adults. However, these age differences disappeared in the Time Limited condition. In this condition, younger adults showed an increased preference for familiar social partners, to the same level as older adults. Conversely, in the Time Expanded condition, older adults decreased their preference for spending time with familiar social partners to the same level as younger adults. Thus, although FTP accounts for many age-related changes in goals and motivation, it can be differentiated from age. Because we were interested primarily in time perspective, which is associated with aging but more broadly with events that highlight endings, we controlled for age in our analyses so that we could focus on the effects of FTP on ideal affect, independent of age.

### Overview of the Present Research

To examine the proposed links between time perspective and ideal affect, we conducted two studies. Study 1 comprised of two parts. In the first part of Study 1, we collected survey data from Hong Kong Chinese ages 18 to 80 years, and examined the relationships between future time perspective, global ideal affect, and preference for LAP (vs. HAP) health care options. In the second part of Study 1, we collected experience sampling data from a subset of survey participants to examine whether global future time perspective predicted momentary ideal LAP and HAP. In Study 2, we experimentally manipulated future time perspective (Fung et al., 1999; Fung & Carstensen, 2006) and tested whether this manipulation altered ideal LAP and ideal HAP as well as preferences for HAP (vs. LAP) health care options. We included a measure of health options to show the real world relevance of the effects of time perspective on ideal affect. As mentioned above, we controlled for age in all of our studies because we were interested in the specific effects of future time perspective independent of other aspects of age.

### Hypotheses

We hypothesized that the more limited people's future time perspective was, the more they would desire LAP states, the less they would desire HAP states, and the more they would prefer health options promoting LAP states over those promoting HAP states. We predicted that these relationships would hold controlling for people's actual affect (how much LAP and HAP they actually feel) and age.

### Study 1: Is Limited Time Perspective Associated With Global and Momentary Ideal Affect?

#### Part 1: Survey

**Participants.** Two hundred Ninety-nine Hong Kong Chinese (46% female;  $M_{age} = 46.62$  years,  $SD_{age} = 20.81$  years, ranging from 18 to 80 years old) participated in this study. The sample size was based on previous research examining ideal affect and age-

related changes in goals (e.g., Tsai et al., 2006; Fung & Carstensen, 2003). The estimated power was 1.00, according to G\*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). All participants were required to (1) live in Hong Kong when the study conducted; (2) have been raised in mainland China or Hong Kong; and (3) have parents who were born and raised in mainland China or Hong Kong. Participants were recruited through the Chinese University of Hong Kong subject pool or through convenience and snowball sampling in Hong Kong.<sup>1</sup> Participants received course credit or small gifts (e.g., towels) as compensation for their participation. All participants were screened for cognitive ability and functioning through the Wechsler Vocabulary Subtest (Gong, 1983; Wechsler, 1997) and a free recall verbal task (Gutchess et al., 2002). No participant was excluded from data analysis.

#### Measures.

**Ideal and actual affect.** The Affect Valuation Index (AVI; Tsai et al., 2006) was used to measure ideal and actual affect. To assess ideal and actual affect, participants rated the frequency with which they *ideally want to feel* or *actually feel* each of 30 affective states over the course of a typical week on 5-point Likert scale from 1 = *never* to 5 = *always*.<sup>2</sup> HAP was measured by aggregating responses to excited, enthusiastic, and elated, and LAP was measured by aggregating responses to calm, peaceful, and relaxed. Cronbach's alpha was .64 for actual HAP, .64 for ideal HAP, .64 for actual LAP, and .61 for ideal LAP. These alpha values were comparable to those found in the previous research (e.g., in Tsai et al., 2006, alphas ranged from .62 to .71 among Hong Kong Chinese).

**Future time perspective.** The Chinese version of the 10-item FTP scale (Carstensen & Lang, 1996; Fung et al., 2001) was used to measure future time perspective (e.g., "Many opportunities await me in the future"; "My future is filled with possibilities"; "There are only limited possibilities in my future" [reverse coded]). Participants were asked to indicate to what extent each statement described them on a 7-point Likert scale from 1 "very untrue" to 7 "very true." We reverse-scored three items and then calculated the mean across all items. A higher score indicates a more expanded or less limited future time perspective (Cronbach's alpha = .85).

**Health care choice scenario.** Participants were presented with a hypothetical scenario adopted from Sims et al. (2014). In this scenario, participants were asked to imagine that their current family doctor was no longer available, and that they had to choose a new physician as their family doctor. Participants read the profiles of two physicians who were matched in terms of age, education background, specialty, and awards. The two physicians, however, differed in their views of patient care and volunteer work experiences, which emphasized either HAP (e.g., "to increase patients' activity levels and overall vitality") or LAP (e.g., "pro-

<sup>1</sup> According to the population census in (Hong Kong, Census & Statistics Department, 2006), 83.9% of older adults (over 60 years old) received education equal to or below primary school. Because of low-education level, they have very limited access to information in public media, such as newspaper and Internet. Therefore, snowballing becomes the most common way to recruit older adults in Hong Kong.

<sup>2</sup> The 30 affective states were enthusiastic, excited, elated, strong, euphoric, satisfied, content, happy, calm, peaceful, relaxed, serene, quiet, still, inactive, passive, sleepy, dull, sluggish, idle, lonely, sad, unhappy, fearful, hostile, nervous, activated, surprised, astonished, and alert.

moting a calm and relaxed lifestyle”). After reading the profiles of the two physicians, participants were asked to choose one physician, and to indicate how difficult it was for them to make this decision on a 7-point scale from 1 “*very difficult*” to 7 “*very easy*.”

**Physical symptoms.** To ensure that the findings were not due to participants’ physical health, we asked participants to complete the Wahler Physical Symptom Inventory (Wahler, 1983). Participants rated the frequency with which they experienced 42 symptoms (e.g., headache) in the past four years on a 6-point Likert scale from 0 “*never*” to 5 “*almost every day*.” We calculated the mean across 42 items (Cronbach’s  $\alpha = .85$ ).

**Demographic information.** Participants were asked to report sex (0 = male; 1 = female), age, education level (0 = before college level; 1 = college or above), marital status (0 = single/divorced/widowed; 1 = married or living with romantic partner).

**Procedure.** All participants completed a survey consisting of the Affect Valuation Index (measuring global ideal and actual affect) and future time perspective in Chinese. The survey included other measures that were not the focus of the present research.<sup>3</sup>

## Data Analyses and Results

Table 1 provides descriptive information for Study 1, and Table 2 shows the correlations between FTP, ideal and actual affect, physician preference, physical symptoms, and demographic variables for Study 1. We identified covariates based on whether they were significantly correlated with FTP and at least one of the two dependent variables (i.e., ideal LAP and ideal HAP). Based on this criterion, education and marital status were treated as covariates in the linear regression analyses. In addition, we controlled for actual affect (actual HAP and LAP), because we were interested in the links between future time

perspective and ideal affect above and beyond actual affect (e.g., Tsai et al., 2006; Scheibe et al., 2013).

**FTP and global ideal affect.** We conducted linear regression analyses in which age, education, marital status, and actual affect (HAP and LAP) were treated as covariates, FTP was the predictor, and ideal HAP and ideal LAP were the criterion variables. We entered FTP into the regression model after the covariates. Table 3 shows the regression results.

As hypothesized, FTP significantly predicted ideal LAP,  $B = -.12$ ,  $SE = .05$ ,  $\beta = -.15$ ,  $t(290) = -2.27$ ,  $p = .02$ , 95% CI  $[-.23, -.02]$ : the more people perceived their future time as limited, the more they valued LAP states. Contrary to hypotheses, however, FTP did not predict ideal HAP,  $B = -.06$ ,  $SE = .05$ ,  $\beta = -.08$ ,  $t(290) = -1.26$ ,  $p = .21$ , 95% CI  $[-.16, .04]$ .

**FTP and health care choice.** To assess the influence of FTP on LAP physician choice, we regressed physician choice onto FTP in a logistic regression analysis. In this model, we controlled for the extent to which participants perceived making the decision as difficult, in addition to education, marital status, actual HAP and LAP, and age. We controlled for perceived difficulty because we were concerned that the more difficult participants found the task, the less of a preference participants may have had between the HAP and LAP physicians.<sup>4</sup> We coded the choice of a LAP physician as 1, and a HAP physician as 0. As hypothesized, FTP negatively predicted the probability of choosing a LAP physician,  $B = -.34$ ,  $SE = .17$ ,  $Wald(1) = 4.07$ ,  $p = .02$ ,  $OR = .71$ , 95% CI  $[.51, .99]$  (see Table 4): The less future time people perceived (or the more limited their time perspective), the more likely they were to choose a LAP (vs. HAP) physician.

We used a survey in Part 1 to examine the relationship between FTP and global ideal affect and experience sampling in Part 2 to examine the relationship between FTP and momentary ideal affect.

## Part 2: Experience Sampling

### Participants

At the end of the survey, we asked participants whether they were interested in participating in related studies in the future. We recontacted those who expressed an interest and recruited 106 people (55% female,  $M_{\text{age}} = 44.96$  years,  $SD_{\text{age}} = 21.08$  years, ranging from 18 to 80 years old) to participate in the experience

Table 1

*Descriptive Information for Scores on Ideal Affect, Actual Affect, Probability in Making a LAP Choice, Future Time Perspective (FTP), and Demographic Information in Study 1*

Variable	Part 1 ( $N = 299$ )		Part 2 ( $N = 106$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
FTP	4.27	.89	4.38	.86
Ideal LAP	3.73	.78	.74	.25
Ideal HAP	3.23	.77	.69	.31
LAP–Choice	.44	.50		
Actual LAP	3.18	.81	.69	.27
Actual HAP	2.58	.74	.56	.33
Age	45.62	20.81	44.96	21.08
Physical symptoms	.97	.62	1.03	1.39
Gender, % female	52		55	
Education, % college	77		72	
Marital status, % married	55		54	

*Note.* Ideal LAP = ideal low-arousal positive affect; ideal HAP = ideal high-arousal positive affect; actual HAP = actual high-arousal positive affect; actual LAP = actual low-arousal positive affect; LAP–choice = average frequency of making a choice that reflects LAP. LAP–choice = percentage of making a choice that reflects LAP; Physical symptoms: a lower score indicates a better physical health condition. Gender: 0 = male, 1 = female; education level: 0 = college or above, 1 = before college level; marital status: 0 = single/divorced/widowed, 1 = married or living with romantic partner.

<sup>3</sup> They include the NEO Personality Inventory–Revised (NEO-PI-R; Costa & McCrae, 1992), Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), Baecke Activity Questionnaire (Baecke, Burema, & Frijters, 1982), Schwartz Value Survey (SVS; Schwartz, 1992, 1994), Circumplex Scales of Interpersonal Values (CSIV; Locke, 2000), American and Chinese American versions of the General Ethnicity Questionnaire (GEQ; Tsai, Ying, & Lee, 2000), and Center for Epidemiological Studies–Depression Scale (CES-D; Radloff, 1977). Because these measures were not related to the main focus of this paper, we did not include these data in our analyses.

<sup>4</sup> The effect of FTP remained significant when we did not control for perceived difficulty,  $B = -.38$ ,  $SE = .17$ ,  $Wald\ statistic\ (1) = 5.08$ ,  $p = .02$ ,  $OR = .69$ , 95% CI  $[.50, .95]$ .



Table 2

Correlation Matrix of Ideal Affect, Actual Affect, Probability in Making a LAP-Choice, Future Time Perspective (FTP) and Demographic Information in Part-1 Survey in Study 1

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Ideal LAP	1										
2. Ideal HAP	.19**	1									
3. LAP Choice (%)	-.08	-.05	1								
4. FTP	-.05	.18**	-.12*	1							
5. Age	-.05	-.17**	-.03	-.54**	1						
6. Actual LAP	.40**	-.06	-.09	-.04	.13*	1					
7. Actual HAP	.10	.52**	-.06	.33**	-.11*	.17**	1				
8. Physical symptoms	-.02	-.06	.12*	-.24**	.12	-.20**	-.18**	1			
9. Gender, % female	.03	.12*	.11	-.08	.02	-.04	-.00	.10*	1		
10. Education, % college	.13*	.06	-.13*	.41**	-.53**	-.01	.08	-.15**	-.06	1	
11. Marital status, % married	-.04	-.13*	-.02	-.43**	.65**	.05	-.05	.06	-.03	-.24**	1

Note. Ideal LAP = ideal low-arousal positive affect; ideal HAP = ideal high-arousal positive affect; actual HAP = actual high-arousal positive affect; actual LAP = actual low-arousal positive affect; LAP-choice = average frequency of making a choice that reflects LAP. LAP-choice = percentage of making a choice that reflects LAP; Physical symptoms: a lower score indicates a better physical health condition. Gender: 0 = male, 1 = female; education level: 0 = college or above, 1 = before college level; marital status: 0 = single/divorced/widowed, 1 = married or living with romantic partner.

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

sampling part of the study.<sup>5</sup> Participants received \$500 HKD as compensation for their participation. The estimated power was .99, according to analysis using G\*Power 3 (Faul et al., 2007).

## Measures

**Ideal and actual affect.** Participants were asked to indicate the intensity that they *ideally wanted to feel* or *were actually feeling* enthusiastic or calm at the particular moment that they were contacted on a 5-point scale, from 1 *not at all* to 5 *extremely*. The one-item measures were all significantly correlated with the component scores that were used in Study 1 (ranging from .75 to .76). Participants' future time perspective and demographics were taken from the survey.

## Procedure

Participants first identified a 12-hr period (e.g., 9 a.m. to 9 p.m.) during the day when it was convenient for them to receive phone calls. During the 12 hr, they were called at five randomly selected times a day for 7 days (Reis & Gable, 2000). The time interval between two calls was at least 1 hr. Each time they were called, participants were asked questions about their momentary actual and ideal affect.<sup>6</sup> On average, participants completed the questionnaire for 6.95 ( $SD = .32$ ) days, and 4.72 ( $SD = .62$ ) times per day. Thus, over the course of the week, participants completed the questionnaire an average of 32.86 times ( $SD = 2.98$ ), ranging from 16 to 35 times.

## Data Analyses and Results

To examine whether momentary ideal affect was influenced by future time perspective, we computed frequency scores of momentary actual and ideal affect based on their original intensity scores following the method described in Scheibe et al. (2013). Specifically, we recoded the 5-point intensity ratings into 1 = *yes* and 0 = *no*. An intensity rating equal to or larger than 3 (*a moderate amount*) was recoded as 1 *yes*, indicating that the affective state occurred; and an intensity rating equal to 1 = *not at all* or 2 = *a*

*little bit* was recoded as 0 = *no*, indicating that the affective state was minimal or did not occur. As a result, each participant had four frequency scores: frequency of momentary ideal and actual enthusiasm (HAP) and of ideal and actual calmness (LAP). We then regressed the frequency scores of momentary ideal LAP and HAP onto FTP, controlling for education, marital status, momentary actual HAP and LAP, and age.

## FTP and Momentary Ideal Affect

As predicted and shown in Table 3, FTP predicted the frequency of valuing LAP,  $B = -.15$ ,  $SE = .06$ ,  $\beta = -.14$ ,  $t(99) = -2.28$ ,  $p = .03$ , 95% CI  $[-.27, -.02]$ : the more limited participants' time perspective, they more frequently they valued calm. Contrary to prediction but consistent with the survey results, FTP did not predict momentary ideal enthusiasm,  $B = -.08$ ,  $SE = .06$ ,  $\beta = -.08$ ,  $t(99) = -1.42$ ,  $p = .16$ , 95% CI  $[-.20, .03]$ .

## Study 1 Discussion

As predicted, having a more limited time perspective was associated with valuing LAP states more at both the global and momentary levels, and with choosing a LAP (vs. HAP) physician. However, time perspective was not related to valuing HAP states. Because these data were correlational, we conducted Study 2 to examine the causal relationship between time perspective and ideal LAP and HAP.

<sup>5</sup> Preliminary analysis revealed that participants who completed both parts of Study 1 were not significantly different in any of the variables measured from those who only completed the survey, with the exception of ideal HAP. (The first group desired HAP more than did the second group.) In addition, we reran the analyses for the survey for these two groups separately, and found consistent patterns of results across the two groups.

<sup>6</sup> We also measured participants' social contexts (e.g., activities, social partners) when we contacted them.

Table 3  
Hierarchical Linear Regression Analysis Results in Study 1

Variable/ Model	Part 1: Survey					Part 2: Experience sampling				
	B (SE)	β	t	95% CI	ΔR <sup>2</sup>	B (SE)	β	t	95% CI	ΔR <sup>2</sup>
<b>Model 1</b>					ΔR <sup>2</sup> = .16***					ΔR <sup>2</sup> = .81***
Education	.17 (.12)	.09	1.40	[-.07, .40]	-.09 (.11)	-.04	-.33	[-.71, .05]	-.05 (.08)	-.04
Marital status	.01 (.12)	.01	.08	[-.22, .24]	-.07 (.11)	-.04	-.36	[-.71, .05]	-.19 (.13)	-.09
Actual HAP	.05 (.06)	.05	.82	[-.07, .16]	.54 (.05)	.52	10.34***	[.44, .64]	.84 (.05)	.84
Actual LAP	.38 (.05)	.39	7.13***	[.27, .48]	-.12 (.05)	-.12	-2.39*	[-.21, -.02]	.06 (.05)	.06
Age	-.04 (.07)	-.05	-.57	[-.18, .10]	-.09 (.07)	-.11	-1.29	[-.22, .05]	-.25 (.08)	-.24
<b>Model 2</b>					ΔR <sup>2</sup> = .02*					ΔR <sup>2</sup> = .004
Education	.22 (.12)	.12	1.79	[-.02, .45]	-.07 (.11)	-.04	-.39	[-.71, .05]	-.05 (.08)	-.04
Marital status	-.02 (.12)	-.02	-.19	[-.26, .21]	-.08 (.11)	-.05	-.75	[-.30, .13]	-.22 (.13)	-.11
Actual HAP	.07 (.05)	.09	1.50	[-.03, .21]	.42 (.04)	.54	10.22***	[.45, .67]	.86 (.06)	.85
Actual LAP	.30 (.04)	.39	7.05***	[.27, .47]	-.10 (.04)	-.12	-2.45*	[-.22, -.02]	.05 (.05)	.05
Age	-.08 (.07)	-.10	-1.09	[-.23, .07]	-.11 (.07)	-.13	-1.55	[-.24, .03]	-.28 (.08)	-.27
FTP	-.12 (.05)	-.15	-2.27*	[-.23, -.02]	-.06 (.05)	-.08	-1.26	[-.16, .04]	-.08 (.06)	-.08

Note. Ideal LAP = ideal low-arousal positive affect; ideal HAP = ideal high-arousal positive affect; actual LAP = actual low-arousal positive affect; actual HAP = actual high-arousal positive affect; actual LAP = actual low-arousal positive affect. Gender: 0 = male, 1 = female; education level: 0 = college or above, 1 = before college level; marital status: 0 = single/divorced/widowed, 1 = married or living with romantic partner. \* p < .05. \*\* p < .01. \*\*\* p < .001.

Table 4  
Logistic Regression Results in the Survey of Study 1

Model	Variable	B (SE)	Wald (df = 1)	Exp (B)	95% CI
1	Education	-1.10 (.37)	8.96***	.34	[.16, .69]
	Marital Status	.27 (.35)	.59	1.31	[.66, 2.63]
	Difficulty	.03 (.08)	.16	1.03	[.88, 1.21]
	Physical	.35 (.21)	2.90	1.42	[.95, 2.13]
	Actual HAP	-.11 (.13)	.71	.90	[.70, 1.15]
	Actual LAP	-.09 (.13)	.51	.91	[.71, 1.17]
	Age	-.47 (.22)	4.48*	.62	[.40, .97]
2	Education	-1.00 (.37)	7.23***	.37	[.18, .76]
	Marital Status	.19 (.36)	.30	1.21	[.60, 2.44]
	Difficulty	.05 (.08)	.32	1.05	[.88, 1.23]
	Physical	.28 (.21)	1.81	1.33	[.88, 2.00]
	Actual HAP	-.03 (.13)	.04	.97	[.75, 1.26]
	Actual LAP	-.12 (.13)	.79	.89	[.69, 1.15]
	Age	-.59 (.23)	6.46***	.55	[.35, .87]
FTP	-.34 (.17)	4.07*	.71	[.51, .99]	

Note. N = 299. Dependent variable: Choosing a LAP physician. Difficulty = the difficulty of making the choice; Physical = Physical Symptoms: a lower score indicates a better physical health condition; Actual LAP = actual low-arousal positive affect; Actual HAP = actual high-arousal positive affect; FTP = future time perspective, a larger score indicates a more expanded (less limited) future time. \* p < .05. \*\* p < .01. \*\*\* p < .001.

### Study 2: Does Manipulating Time Perspective Change the Value of Calm?

To examine whether manipulating time perspective altered the value placed on calm, in Study 2, we manipulated time perspective (Fung et al., 1999; Fung & Carstensen, 2004) by asking participants to imagine a situation that limited or expanded their perceptions of time, and then asked them to complete the AVI and the health care scenarios similar to those used in Study 1.

### Method

**Participants.** Two hundred fifty-eight Hong Kong Chinese (57% female; M<sub>age</sub> = 43.31 years, SD<sub>age</sub> = 20.66 years, ranging from 18 to 80 years old) were recruited in this study. The sample size was based on previous research (e.g., Fung & Carstensen, 2003). The estimated power was 0.95 (Faul et al., 2007). We used convenience sampling via snow-balling to recruit participants from the university subject pool and the larger Hong Kong community. Using the same criteria as in Study 1, participants in this study were screened based on their ethnicity and level of cognitive functioning. No participant was excluded. Participants received course credit or \$100 HKD as compensation for their participation in the study.

**Procedure.** Participants were randomly assigned to one of two conditions: (a) Limited Time, or (b) Expanded Time. Based on previous research (Fung et al., 1999; Fung & Carstensen, 2004), participants in the Limited Time Condition were instructed to “Imagine that you are going to move to a developing country in two weeks. No member of your family or your current social circle will be accompanying you. . . .” Participants in the Expanded Time were instructed to “Imagine that you have found out from your doctor about a new medical advance that insures you will enjoy 20

more years beyond the age you expected to live, in reasonably good health . . .”

As a manipulation check, participants were then asked to use a 7-point scale from 1 *very untrue* to 7 *very true* to indicate how much they agreed with three statements adopted from the Future Time Perspective scale, e.g., “There are plenty of opportunities in your future;” “Life is short” (reverse coded; Carstensen & Lang, 1996). In addition, participants rated the extent to which they could imagine the situations presented on a 7-point scale from 1 *not at all* to 7 *very much*. Finally, participants completed the AVI (Tsai et al., 2006) and three health scenarios described below.

#### Measures.

##### *Ideal affect, actual affect, physical symptoms, demographics.*

These measures were the same as those used in the survey portion of Study 1.

**Health care scenarios.** Participants read three scenarios in which they had to choose between two health care options. The physician choice scenario was identical to the one used in Study 1. In addition, participants had to choose between two medical centers, one aimed at helping residents “have fun and feel engaged” and one aimed at helping residents “find comfort and feel rested.” The third scenario asked participants to choose between a “stimulating” and a “soothing” drug (see Appendix). *LAP choices* were coded as 1, and *HAP choices* were coded as 0. We then averaged the three scores to calculate an overall frequency of the LAP-choice score. After completing each scenario, participants indicated how difficult it was for them to make the decision on a 7-point scale, from 1 = *very difficult* to 7 = *very easy*. Similarly, we computed an overall difficulty score, by averaging the difficulty scores for each of the scenarios.

## Data Analyses and Results

### Preliminary analyses: Manipulation check and identification of covariates.

**Manipulation check.** We first computed the average score of the three manipulation check items to assess how much future time people perceived in their lives after the manipulation. We performed a factorial ANCOVA to test whether participants across conditions (a between-subjects variable; two conditions: limited time and expanded time) differed in their responses in perceived future time. As predicted, we found a significant main effect of condition,  $F(1, 251) = 3.99, p = .05, \eta^2 = .02$ , observed power = .51. Participants in the expanded time condition ( $M = 4.29, SD = 1.09$ ) perceived their future time as more expanded than did participants in the Limited Time condition ( $M = 4.01, SD = 1.12$ ).

**Identification of covariates.** As in Study 1, we controlled for age, actual HAP and actual LAP in the analyses of ideal HAP and ideal LAP. We also controlled for the average difficulty in making the decision in the analyses of mean frequency of LAP choice. In addition, we controlled for participants’ reported ability to imagine the presented scenarios. Table 5 shows the descriptive information, and Figure 1 illustrates the results of ANCOVAs reported below.

**Does manipulating time perspective alter ideal affect?** As predicted, there was a significant main effect of condition on ideal LAP,  $F(1, 249) = 7.43, p < .01, \eta^2 = .03$ , observed power = .78; and ideal HAP,  $F(1, 249) = 5.59, p = .02, \eta^2 = .02$ , observed

Table 5

*Descriptive Information for Scores on Ideal Affect, Actual Affect, Probability in Making a LAP Choice, future time perspective (FTP), and Demographic Information in Study 2*

Variable	Limited time ( <i>N</i> = 122)		Expanded time ( <i>N</i> = 136)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
FTP	4.01	1.12	4.29	1.09
Imagine	4.22	1.43	4.07	1.38
Ideal LAP	3.91	.76	3.77	.77
Ideal HAP	3.25	.78	3.33	.87
LAP-choice	.59	.32	.51	.29
Difficulty	4.89	1.14	5.00	1.09
Actual LAP	3.05	.84	3.25	.74
Actual HAP	2.26	.84	2.79	.81
Age	42.17	20.44	44.34	20.89
Physical symptoms	1.80	.53	1.85	.55
Gender, % female	56		61	
Education, % college	54		49	
Marital status, % married	48		52	

*Note.* *N* = 258. Ideal LAP = ideal low-arousal positive affect; ideal HAP = ideal high-arousal positive affect; actual HAP = actual high-arousal positive affect; actual LAP = actual low-arousal positive affect; LAP-choice = average frequency of making a choice that reflects LAP. Physical symptoms: a lower score indicates a better physical health condition. Gender: 0 = male, 1 = female; education level: 0 = college or above, 1 = before college level; marital status: 0 = single/divorced/widowed, 1 = married or living with romantic partner.

power = .65. Participants in the Limited Time condition wanted to experience more LAP ( $M = 3.91, SD = .76$ ) and less HAP ( $M = 3.25, SD = .78$ ) than did participants in the Expanded Time condition (LAP:  $M = 3.77, SD = .77$ ; HAP:  $M = 3.33, SD = .87$ ).

**Does manipulating time perspective alter health care choice?** Also as predicted, there was a significant main effect of condition on health care choice,  $F(1, 248) = 5.10, p = .03, \eta^2 = .02$ , observed power = .61. Participants in the Limited Time condition ( $M = .59, SD = .33$ ) preferred LAP choices more than participants in the Expanded Time condition ( $M = .51, SD = .30$ ), who did not show a preference between LAP and HAP options.

## Study 2 Discussion

Study 2 investigated the influence of future time perspective on ideal affect using an experimental manipulation. Compared to participants in the Expanded Time condition, participants in the Limited Time condition wanted to feel more LAP, less HAP, and made LAP-related (vs. HAP-related) choices more often. These findings were in line with Study-1 findings and provide experimental evidence that limited time perspective increases the value of LAP states.

## General Discussion

Based on AVT (Tsai et al., 2006), the present research investigated the influence of future time perspective on the affective states that people ideally want to feel. As predicted, when participants had more limited time perspective, they ideally wanted to feel LAP more (both global and momentary) and were more likely to prefer LAP to HAP health options. Evidence for the link

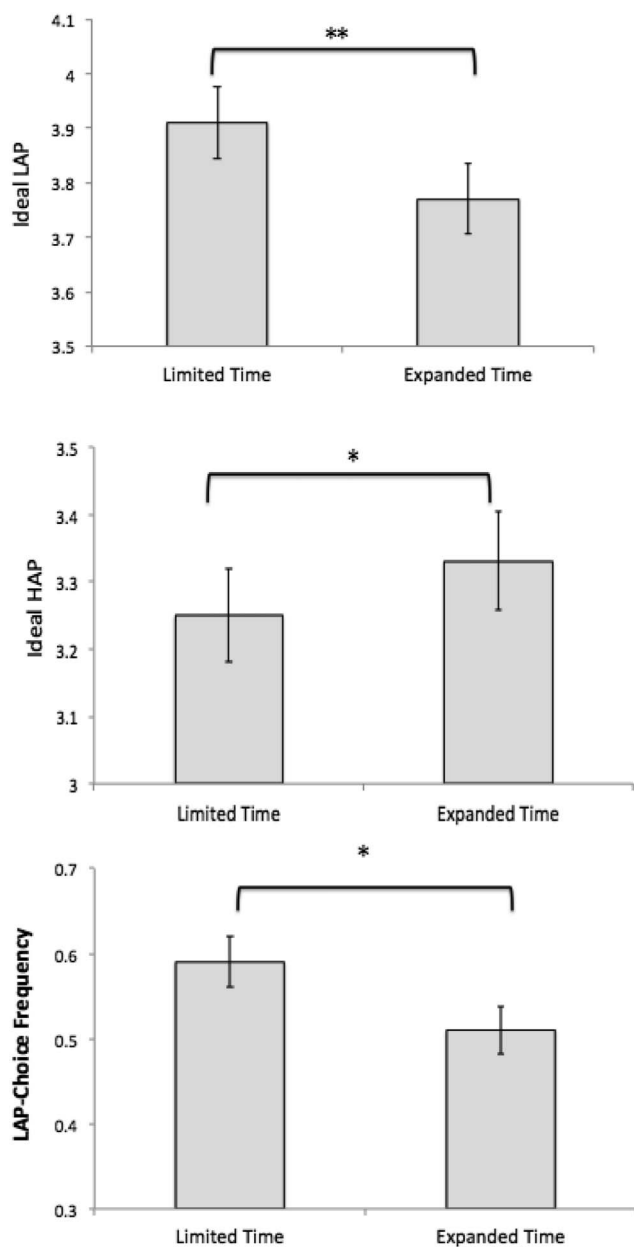


Figure 1. Ideal LAP (upper), ideal HAP (middle), and frequency in making LAP-related choice (bottom) ratings for each condition and for each age group. Adjusted ratings are represented by the y axis. A larger value indicates a greater desire for the LAP and HAP states, or more times that the participant chose a LAP-related option over a HAP-related option. Bars present standard errors.

between Expanded Time perspective and ideal HAP, however, was mixed: although there was no association in Study 1, when we manipulated expanded time in Study 2, participants valued HAP more. In part this may be because Hong Kong Chinese in general value LAP more than HAP (Tsai et al., 2006). In future studies, it will be important to examine whether the survey findings replicate in cultures that place a value on HAP states more (e.g., the United States).

## Implications for Research on Emotion and Health Settings

These findings have important implications for research on emotion. First, they broaden existing work on ideal affect by identifying another source of variation in ideal affect. Indeed, it is possible that previously observed differences in ideal affect may be due not only to influence and adjustment goals as observed in Tsai et al. (2007), but also to larger differences in time perspective. In other words, North Americans may desire HAP states more than Chinese because they are more future-oriented than Chinese (Guo, Ji, Spina, & Zhang, 2012). Similarly, Chinese may value LAP states more than North Americans in part because they are more oriented to the present or past (Robinson, 1996). Second, the current findings lend support to the possibility that previously observed age differences in ideal affect were due to future time perspective. In the present study, we controlled for age because we were interested primarily in time perspective. In the survey, after controlling for FTP, age was no longer associated with global ideal LAP or HAP, suggesting that a significant portion of age differences in global ideal affect may be due to FTP. However, even after controlling for FTP, older age was associated with devaluing LAP and HAP in the experience sampling and experimental studies, suggesting that other aspects of age may be also shaping momentary ideal affect. Future research should examine the conditions under which FTP explains age differences in ideal affect, and the conditions under which it does not.

The findings also have important implications for health settings. Given previous studies demonstrating the importance of ideal affect in health settings (Sims et al., 2014; Sims & Tsai, 2015), these findings suggest that health care providers should consider how their patients' ideal affect might change as they perceive imminent endings. For instance, health care providers may create more calming and relaxing environments for individuals who have terminal illnesses as they approach the end of life as well as for individuals undergoing medical procedures that draw their attention to the end of life.

## Limitations and Future Directions

The present work has several limitations that may guide future research. First, we recruited participants through convenience sampling. Even though the demographic characteristics of samples are comparable to those of the larger Hong Kong population, according to the Thematic Household Survey (THS; Hong Kong, Census and Statistics Department, 2009), convenience sampling can create biases. Thus, future studies should replicate the current findings with more representative samples. Second, participants in both studies were Hong Kong Chinese. As mentioned above, the links between expanded time perspective and ideal HAP may have been weaker than the link between limited time perspective and ideal LAP in part because Hong Kong Chinese value LAP more and HAP less than European Americans. Thus, future studies are needed to assess whether these findings replicate in European American samples. Third, we demonstrated that time perspective was associated with preference for LAP versus HAP health options. In future research, it would be important to examine the other ways in which changes in time perspective influence ideal affect-related behaviors.



## Conclusion

In two studies, we investigated the relationship between time perspective and the affective states that people ideally want to feel. As predicted, the more people perceive their time to be limited, the more they value calm and other low arousal positive states (LAP; e.g., calm, relaxed, and peaceful). These findings provide evidence for another important source of variation in how people ideally want to feel.

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## Appendix

### Scenarios in Study 2

#### Choosing a Physician Scenario

Choosing a physician is essential to receiving optimal health care. Imagine that your current physician is no longer available, and you now have to choose one of the two physicians described below to provide your regular health care. Both have similar educational backgrounds, are accredited by the American Medical Association, and have been recognized by their medical center as providing outstanding care. Please read their descriptions carefully and respond to the questions that follow.

#### Dr. Ho

- Specialty: Internal medicine
- Facility: Hong Kong Medical Center
- Department: Internal Medicine
- Education: Doctor of medicine, University of California San Francisco, 1991
- Award for Outstanding Health-Care Provider, Hong Kong Medical Center
- Views on patient care: “My goal as a physician is to enhance patients’ well-being by increasing their activity

levels and overall vitality so they can lead dynamic lifestyles.”

- Outside interests: “I volunteer in a youth home where we help adolescents to discover a passion for educational goals.”

#### Dr. Fong

- Specialty: Internal medicine
- Facility: Hong Kong Medical Center
- Department: Internal Medicine
- Education: Doctor of medicine, University of California San Francisco, 1991
- Distinguished Service in Health Award, Hong Kong Medical Center
- Views on patient care: “My goal as a physician is to ensure that my patients have peace of mind when it comes to their health by promoting a calm and relaxed lifestyle.”
- Outside interests: “I spend time at a facility where I teach young people to feel more at ease with school.”

(Appendix continues)

### Selecting a Residential Health Facility Scenario

Imagine that you have developed a health condition today that requires regular long-term rehabilitative services. Your health-care plan fully covers expenses for your stay in a residential health facility. Please read the following descriptions of two facilities and answer the following questions.

#### Sunshine Village

**Mission Statement:** While ensuring our staff is readily available to meet our residents' needs, we provide a lively environment so that our residents are sure to have fun and feel engaged. Sunshine Village provides the highest quality 24-hr care for all residents. Some amenities include

- Three meals a day
- Physician always available
- Weekly housekeeping services

#### Seacrest Terrace

**Mission Statement:** While maintaining our dedication to prompt service, we offer our residents a serene atmosphere to help them find comfort and feel rested. Seacrest Terrace ensures first-rate, around-the-clock care for all residents. Some amenities include

- Housekeeping services every week
- An on-call physician
- Three daily meals

### Opting for a Medical Treatment Scenario

Imagine you have a health condition that requires you to take one of two possible treatments in the form of a pill to be able to

lead a functional life. You would take this pill every day for the rest of your life. Both medications are equally effective at treating the health condition. However, in addition to restoring your ability to lead a functional life, these pills would have other effects. Additional effects of each treatment are described below.

#### Treatment 385

People who have taken this medication have reported that it can lead to

- Stimulation.
- Increased energy.
- Feelings of exhilaration
- However, other effects include  
Dry hair  
Flaky skin  
Mild headache

#### Treatment 291

People who have taken this medication have reported that it can lead to

- Soothing feelings
- Increased relaxation
- Tranquility
- However, other effects include  
Dry hair  
Flaky skin  
Mild headache

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