Emotion

Valuing Calm Enhances Enjoyment of Calming (vs. Exciting) Amusement Park Rides and Exercise

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Do people derive more enjoyment from activities that match how they ideally want to feel (their "ideal affect")? Affect valuation theory (AVT) predicts that they do; however, no study has directly examined whether this is the case. Therefore, the authors conducted 4 studies that examined whether valuing calm and other low arousal positive states (LAP) increased enjoyment of calming (vs. exciting) activities. In Study 1, the more participants valued LAP, the more enjoyment they recalled during calming (vs. exciting) episodes from their lives. In Studies 2–3, the more participants valued LAP, the more enjoyment they experienced during calming (vs. exciting) amusement park rides, both in the United States and Hong Kong. To assess causality, in Study 4, participants were randomly assigned to either a "value LAP" or control condition and then engaged in either low or high intensity exercise. Participants in the value LAP condition who engaged in low intensity exercise reported greater enjoyment than those who engaged in high intensity exercise; these differences did not emerge in the control condition. People's trait levels of experienced LAP ("actual LAP") were not related to their enjoyment of calming (vs. exciting) activities. Together, these findings provide evidence that people derive more enjoyment from activities that match their ideal affect. The authors discuss the implications of these findings for AVT as well as interventions aimed at enhancing well-being.

Keywords: ideal affect, happiness, activity, emotion, valuation

Supplemental materials: http://dx.doi.org/10.1037/emo0000348.supp

Although most people want to feel good, people differ in the specific good states they want to feel, or their ideal affect (Tsai, Knutson, & Fung, 2006; Tsai, 2007). In a series of studies, we have demonstrated that individual and cultural differences in ideal affect have consequences for what people do to feel good. Whether they are aware of it or not, people often choose people, products, or activities that match their affective preferences (Sims, Tsai, Koopmann-Holm, Thomas, & Goldstein, 2014; Tsai, 2007; Tamir & Ford, 2012). For instance, the more people value calm and other low arousal positive states, the more likely they are to choose calming versus exciting physicians, music, and consumer products (Sims et al., 2014; Tsai, Miao, Seppala, Fung, & Yeung, 2007; Tsai, Chim, & Sims, 2015). What remains unknown, however, is whether people actually derive greater enjoyment from activities that match their ideal affect. Answering this question is critical to understanding the links between ideal affect and affective experi-

ence and may have important implications for the effectiveness of mood-enhancing interventions. Therefore, we conducted four studies that focused primarily on the effects of valuing calm, peacefulness, and other low arousal positive states [LAP] on enjoyment of calming (vs. exciting) activities. Before describing our studies, we present affect valuation theory (AVT), the framework motivating this research.

AVT

AVT integrates ideal affect into existing models of affect and emotion (Tsai, 2007). By *affect*, we refer to feeling states that can be described along the dimensions of valence and arousal (Barrett & Russell, 1999; Larsen & Diener, 1992; Russell, 1991; Russell, 2003; Thayer, 1989; Watson & Tellegen, 1985). Thus, although calm, peacefulness, relaxation, and other LAP are relatively lower in arousal, excitement, enthusiasm, elation, and other high arousal positive states (HAP) are relatively higher in arousal. Happiness, contentment, satisfaction, joy, and other positive states, in contrast, fall in between high and low arousal levels. We focus on affective states because many scholars consider affective states to be fundamental to a variety of emotional phenomena (e.g., Russell, 1991; Watson & Tellegen, 1985), and because across cultures, people organize different emotional states into these two dimensions, suggesting that they have similar meaning (and therefore, are comparable) across cultures (Kuppens, Ceulemans, Timmerman, Diener, & Kim-Prieto, 2006; Russell, Lewicka, & Niit, 1989; Yik & Russell, 2003).

The first premise of AVT is that how people actually feel (their actual affect) differs from how people ideally want to feel (their ideal affect). Whereas actual affect is a response to a meaningful event (e.g., actually feeling calm while riding a Ferris wheel), or a tendency to respond in a certain way (e.g., actually feeling calm on average), *ideal affect* is a goal or desired state in response to a specific situation (e.g., wanting to feel calm while riding a Ferris wheel) or on average (e.g., wanting to feel calm on average). Both ideal affect and actual affect are important to emotional life, but they serve different functions: Whereas actual affect represents how someone is feeling ("I feel good"), ideal affect provides a way of interpreting or evaluating that state ("This feels right"). Indeed, across a variety of cultural contexts, people report wanting to feel more positive and less negative than they actually feel, and on average, actual affect and ideal affect are only weakly-to-moderately correlated with each other (r = .07 to .53; Tsai, Knutson, & Fung, 2006). Furthermore, analyses using structural equation modeling reveal that models that treat actual affect and ideal affect as distinct constructs provide a better fit than models that treat actual affect and ideal affect as a single construct (Tsai et al., 2006; Koopmann-Holm & Tsai, 2014). Together, these findings support the first premise of AVT that actual affect and ideal affect are distinct.

The second premise of AVT is that although both actual affect and ideal affect may be shaped by cultural and temperamental factors, cultural factors shape ideal affect more than actual affect, and temperamental factors shape actual affect more than ideal affect (Tsai et al., 2006; Tsai, 2007). For instance, both within and across cultures, cultural values (i.e., values associated with independence and interdependence) were correlated more with ideal affect than actual affect (Tsai et al., 2006). In contrast, tempera-

mental factors (i.e., extraversion, neuroticism) were correlated more with actual affect than ideal affect (Tsai et al., 2006). Furthermore, across a series of studies, we have demonstrated cultural differences in ideal affect, with European Americans valuing excitement and other HAP more and calm and other LAP less than Hong Kong Chinese (Tsai et al., 2006; Tsai, Miao, Seppala, Fung, & Yeung, 2007). These differences are reflected in popular media such as children's storybooks, women's advertisements, Facebook photos, and public figures' official photos (Tsai, Louie, Chen, & Uchida, 2007; Huang & Park, 2013; Tsai et al., 2016) and are reinforced through engagement in specific practices. For instance, Buddhist inspired meditation increased how much people wanted to feel LAP but did not increase how much they actually felt those states (Koopmann-Holm, Sze, Ochs, & Tsai, 2013).

The third premise of AVT is that ideal affect predicts what people do to feel good. The more people want to feel LAP, the less likely they are to engage in rigorous physical exercise in the lab when given a choice (Hogan, Chim, Sims, & Tsai, 2015), and the more likely they are to describe more calming ideal vacations, and to prefer calming (vs. exciting) pieces of classical music (Tsai, 2007). Recently, we demonstrated that people's ideal affect also influences more serious and consequential choices such as which physicians people choose (Sims et al., 2014; Sims et al., in press) and even the degree to which people adhere to their physicians' recommendations (Sims & Tsai, 2015). For instance, the more people ideally want to feel LAP, the more likely they are to choose a physician who promotes a "relaxed lifestyle" (vs. one who promotes a "dynamic lifestyle") and adhere to his recommendations. These associations held even after controlling for how much people actually felt LAP over the course of a typical week, suggesting that how people want to feel predicts what people do to feel good and the choices they make, above and beyond how people actually feel.

These findings, however, assume that people make choices based on their ideal affect, in part because people find choices that match their ideal affect more pleasurable or enjoyable. Based on control process theory (Carver & Scheier, 1982) and mood regulation models (Larsen, 2000), AVT predicts that the more individuals value a specific affective state, the more enjoyable and pleasant they will find activities, objects, or even people that elicit that state. Because ideal affect serves as the metric or standard by which people compare their actual feelings, the more people value a state that is elicited by a specific activity, object, or person, the more they should enjoy that activity. In support of this notion, compared to European Americans, Chinese showed greater activity in the ventral striatum when viewing calm versus excited faces, and this activity predicted their preference for calm versus excited faces many months later (Park, Tsai, Chim, Blevins, & Knutson, 2016), suggesting that Chinese experienced faces that matched their ideal (i.e., the calm faces) as more rewarding than those that did not (i.e., the excited faces). Other indirect evidence supports this hypothesis in the context of people's ideal selves (i.e., the wishes, hopes, and aspirations people have for themselves; Higgins, 1987). For instance, people experience more positive feelings when they are making progress toward their wishes and aspirations (Carver & Scheier, 1990) and when their emotional experiences are consistent with their culture's ideal model of self (Kitayama, Markus, & Kurokawa, 2000).

More recent studies have examined how people feel when they meet or do not meet their affective goals. For example, in Mauss, Tamir, Anderson, and Savino (2011), participants who read an article extolling the benefits of being extremely happy felt less happy after watching a subsequent amusing film clip (but not a sad one) compared to participants who read about the benefits of making accurate judgments. However, this study focused more on differences in intensity (desired extreme vs. experienced moderate levels of happiness) rather than differences in arousal per se. Other studies have demonstrated that when people endorse specific values, they are more likely to experience emotions that are related to those values (Tamir et al., 2015; De Leersnyder et al., in press).

To date, however, no research has directly examined whether ideal affect shapes people's enjoyment of specific activities that elicit or do not elicit their ideal affect. Given the centrality of activities in daily life and in mood-enhancing interventions, and our previous findings that ideal affect shapes people's preferences for specific activities, we focused on enjoyment of calming (vs. exciting) activities in the present research.

The Present Research

We focused on participants' experience of enjoyment and other positive states (happy, satisfied, positive) because these states sample the "pleasant" or "positive" octant of the affective circumplex, which falls in between HAP (excitement) and LAP (calm) in terms of arousal levels. Thus, these states can be experienced during both calming and exciting activities, and therefore can be compared across activities (Barrett & Russell, 1999; Barrett & Fossum, 2001; Feldman, 1995). The enjoyment aggregate included five items (how *happy, content, satisfied,* and *positive* they felt, as well as how much they *enjoyed* the activity) across the four studies. The specific items used in each study, however, varied slightly: Studies 3 and 4 used all five items, whereas Study 1 did not include enjoyment, and Study 2 did not include contentment or satisfaction.[1] Regardless, the reliability across all four studies was high (α ranged from .82 to .95). We did not include HAP or LAP terms because, by definition, calming activities do not involve high levels of HAP, and exciting activities do not involve high levels of LAP and thus would not be comparable across activities.[2] In addition, we were interested in comparing our findings to the studies described above demonstrating that meeting one's goals elicits general positive states. Our use of actual affect as a dependent variable and ideal affect as an independent variable is also consistent with previous work examining the relationship between ideal affect and affective experience (e.g., Sims et al., 2015).

To assess the relationship between people's ideal affect and their enjoyment of activities that did or did not elicit their ideal affect, we conducted four studies. In these studies, we focused on the link between valuing LAP (ideal LAP) and enjoyment of calming (vs. exciting) activities. Initially, we were also interested in examining the links between valuing HAP (ideal HAP) and enjoyment of exciting (vs. calming) activities, and indeed found some initial evidence for this relationship (Study 1). However, in the subsequent studies, it became clear that the exciting activities that we chose (i.e., exciting amusement rides, high intensity exercise), although eliciting more excitement than calm, were qualitatively different from those that participants described from their own lives in Study 1. Therefore, we were not convinced that they

were as ecologically valid as the calming activities. Moreover, in Study 4, the condition that initially was intended to increase ideal HAP did not (based on our manipulation check), and therefore, ended up acting as a control. Because we were able to elicit ecologically valid calming activities and manipulate ideal LAP in the lab, we focus on ideal LAP in this article, and discuss the possible links between ideal HAP and enjoyment of exciting (vs. calming) activities at the end of the paper in the context of future research.

Finally, we focused on the relative difference in enjoyment between calming and exciting activities because it was difficult to characterize activities as calming or exciting in an absolute sense, and much easier and more ecologically valid to characterize activities as relatively calming or exciting. Indeed, in our previous work demonstrating links between ideal affect and choice of faces, consumer products, and physicians (Park et al., 2016; Sims et al., 2014), participants chose between excited and calm options. Therefore, with the exception of Study 2, we focused on comparing responses to calming versus exciting activities in the main body of the article. We provide results for enjoyment during each activity for Studies 1 and 3 in the online supplementary materials.

In our analyses, we controlled for participants' ideal HAP to ensure that our findings were specific to ideal LAP (and therefore, not due to an overall valuation of positive states). In addition, we wanted to examine whether our findings were specific to ideal LAP and not actual LAP. Due to the weak-to-moderate correlation between actual and ideal LAP, as well as the large literature demonstrating that people's actual feelings (both incidental and integral) predict their subsequent evaluations of products, people, and experiences (see Peters, 2006, and Tsai, Chim, & Sims, 2015, for reviews) we controlled for participants' global (i.e., trait-like) levels of actual LAP. We also controlled for global levels of actual HAP to ensure that the findings were not due to the overall tendency to experience positive states.

In Study 1, participants rated their ideal affect and then recalled events in their lives when they felt calm and excited. In Studies 2–3, we assessed participants' ideal affect and then assessed their enjoyment of calming (vs. exciting) rides at an amusement park. Finally, in Study 4, we manipulated momentary ideal affect to see if it altered participants' enjoyment of low (vs. high) intensity exercise.

Study 1: Ideal Affect and Enjoyment of Recalled Calming Versus Exciting Events

Study 1 Hypotheses

We predicted that the more people valued LAP, the more they would recall enjoying a calming versus exciting event, and that this

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[1] The same pattern of findings emerged when we ran our analyses on an enjoyment aggregate that included only the items that held across all studies (happiness, how positive they felt).

[2] That said, we did run analyses where we included pleasant and HAP and LAP items, and the pattern of findings held. One reviewer raised the possibility that the enjoyment aggregate items could be construed as high arousal positive; however, when we ran our analyses only on an aggregate comprised of HAP items (e.g., excited, elated), we did not observe the same pattern of results.

would hold after controlling for ideal HAP, actual LAP, and actual HAP.

Method

Participants. Sixty-three American college students (41.3% female; age $M = 19.16$, $SD = 1.07$) participated for course credit. Eighty-one percent were European American, 9.5% were Asian or Asian American, 4.8% were multiracial, 1.6% was Hispanic, 1.6% was Native, and 1.6% did not list their ethnicity. We excluded five participants from the data analysis (two participants had website malfunctions; two participants misunderstood instructions; and one participant arrived late and therefore did not finish the study). Based on data piloting the procedure, we anticipated that if there was an effect, the correlation would be approximately $r = .40$. Power analyses revealed that we needed 46 participants to achieve 80% power.

Recalled calming and exciting events. Using a procedure adapted from Morling, Kitayama, and Miyamoto (2002), participants recalled as many calming and exciting events as they could in two 7-min intervals. Participants received the following instructions: "In everyday life, we are surrounded by a variety of people, events, and objects that make us feel different emotions. We would like you to recall as many specific situations as you can in which you felt calm or relaxed (or excited or elated)." The order in which participants described calming and exciting events was counterbalanced.

Measures.

Experienced emotions. Immediately after each interval, participants rated how much they felt happy, satisfied, content, excited, elated, calm, relaxed, unhappy, sad, fearful, nervous, sleepy, still, sluggish, aroused, and surprised during each event using a scale from 1 (*not at all*) to 5 (*extremely*) and how negative/positive the situation made them feel using a scale from 1 (*very negative*) to 7 (*very positive*). We converted the 7-point scales to 5-point scales to be consistent with the affect valuation index (AVI; see below), and then we created an enjoyment aggregate by averaging ratings of happiness, contentment, satisfaction, and positive feelings across all calming events ($\alpha = .82$) and across all exciting events ($\alpha = .83$). Finally, we created an enjoyment difference score by subtracting the enjoyment score for exciting events from the enjoyment score for calming events ($M = -.25$, $SD = .44$), with positive values indicating greater enjoyment of the calming (vs. exciting) events. The rest of the items were treated as fillers.

Actual and ideal affect. To assess global ideal and actual affect, participants completed the AVI (Tsai et al., 2006). To assess ideal affect, we asked participants to rate how often they would "ideally like to feel" various states "during a typical week" on a 1 (*never*) to 5 (*all of the time*) scale. To assess actual affect, we asked participants to rate how often they "actually feel" those same states during a typical week, using the same scale. The AVI included 30 affective states (enthusiastic, dull, excited, sleepy, strong, sluggish, euphoric, idle, aroused, rested, astonished, quiet, surprised, still, passive, inactive, fearful, calm, hostile, peaceful, nervous, relaxed, elated, lonely, content, sad, happy, unhappy, satisfied, and serene). Scores for ideal LAP (and actual LAP) were based on the means of ideal (and actual) calm, relaxed, serene, and peaceful (ideal LAP $\alpha = .70$; actual LAP $\alpha = .85$), and scores for ideal HAP (and actual HAP) were based on the means of ideal (and

actual) excited, enthusiastic, elated, and euphoric, respectively (ideal HAP $\alpha = .71$; actual HAP $\alpha = .74$).

Demographics. Participants also completed a demographic questionnaire, which asked for participants' age, gender, year in school, and ethnicity.

Procedure. Participants came into the lab for a study on "situations and mood." After each sampling interval, participants rated how they felt during each of the identified events. Upon completing both sampling intervals, participants completed the AVI and demographics.

Study 1 Data Analysis and Results

Before testing our hypotheses, we examined whether the order in which participants reported calming versus exciting events affected the number of calming and exciting events they recalled and their reported enjoyment. Analyses revealed order effects,[3] which we controlled for in subsequent analyses.

Effectiveness of situation sampling. As a manipulation check, we first examined whether participants recalled feeling more LAP (calm, relaxed) and less HAP (excited, elated) during the calming versus exciting events they described. We conducted a repeated-measures analysis of covariance with type of event as the within-subjects factor, and the order of recall as a covariate. As expected, participants recalled experiencing more LAP during the calming events ($M = 4.07$, $SD = .53$) than the exciting events ($M = 2.25$, $SD = .69$), $F(1, 56) = 231.36$, $p < .001$, partial $\eta^2 = .81$, and less HAP during the calming events ($M = 2.48$, $SD = .77$) than during the exciting events ($M = 4.22$, $SD = .64$), $F(1, 56) = 187.44$, $p < .001$, partial $\eta^2 = .77$.

Two research assistants coded the types of calming and exciting events reported (Cohen's kappa: .67–.76, $p < .001$). The majority of calming events were related to leisure (e.g., watching TV, reading a book, listening to music, going to the beach; calming: 35.3%, exciting: 8.8%), whereas the majority of exciting activities were related to work/school (e.g., getting into college; calming: 11.1%, exciting: 23.4%) or sports (e.g., winning a sports match; calming: 10.1%, exciting: 22.0%). Moreover, exciting events were more likely to involve some degree of novelty/uncertainty (e.g., going on first date; exciting: 58.5%, calming: 8.2%) and to be achievement-oriented (e.g., getting a good grade; exciting: 37.3%, calming: 10.1%) than were calming events. Overall, participants reported enjoying the calming events significantly less than the exciting events (calming events $M = 3.93$, $SD = .49$; exciting events $M = 4.18$, $SD = .51$), $t(57) = 4.38$, $p < .001$.

To test our hypotheses, we conducted a multiple regression analysis in which the recalled enjoyment difference score was the dependent variable, ideal LAP was the predictor variable, and

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[3] We conducted two repeated measures ANOVAs with one within-subject factor (type of event) and one between-subjects factor (order of recall). Analyses revealed a significant order by number of recalled events interaction, $F(1, 56) = 23.93$, $p < .001$, partial $\eta^2 = .30$: Participants recalled a greater number of events for the first type of event compared to the second type of event. There was also a significant enjoyment by order interaction, $F(1, 56) = 6.11$, $p = .016$, partial $\eta^2 = .10$: Participants who described calming events first recalled enjoying exciting events ($M = 4.27$, $SD = .43$) more than calming events ($M = 3.88$, $SD = .39$), $t(28) = 5.35$, $p < .001$, whereas participants who described exciting events first did not differ in their enjoyment of exciting ($M = 4.10$, $SD = .57$) and calming events ($M = 3.99$, $SD = .57$), $t(28) = 1.39$, $p = .18$.

actual LAP, actual HAP, ideal HAP, and order of recall were covariates.

Is valuing LAP related to recalled enjoyment of calming versus exciting events? As predicted and illustrated in Tables 1 and 2, when controlling for actual LAP, actual HAP, and ideal HAP, the more participants valued LAP, the more enjoyment they recalled feeling during the calming versus exciting events (β = .390, p = .006). In addition, in this same model, the more participants valued HAP, the *less* enjoyment they recalled feeling during the calming versus exciting events (β = −.409, p = .004).[4] When we only included ideal LAP in the model, the relationship between ideal LAP and enjoyment was not significant (β = .10, p = .47); however, when we included order, ideal LAP, and ideal HAP in the model, both ideal LAP and HAP were significant (ideal LAP β = .29, p = .02; ideal HAP β = −.41, p = .002), suggesting that there might be overlapping variance relating to valuing positive emotions in general that suppressed the independent effect of ideal LAP on recalled enjoyment. See the online supplementary materials for results for enjoyment of calming and exciting activities analyzed separately.

Study 1 Discussion

As predicted, the more participants wanted to feel LAP, the more they recalled enjoying calming relative to exciting events. We also found that the more participants wanted to feel HAP, the less they recalled enjoying calming versus exciting events. These findings suggest that valuing LAP enhances recalled experiences of enjoyment during calming events relative to exciting events, and that valuing HAP reduces recalled experiences of enjoyment during calming versus exciting events. Because the recalled events occurred on average 41 weeks before study participation, one might argue that these findings are due to retrospective biases; specifically, the more individuals value LAP, the more likely they may be to remember enjoyable calming versus exciting events (Scollon et al., 2009). Therefore, in the next study, we examined whether people's ideal LAP predicted their enjoyment of calming versus exciting activities assessed immediately after they were exposed to the same calming and exciting activities.

Study 2: Valuing LAP and Enjoyment of Calming (vs. Exciting) Amusement Park Rides

In Study 2, we tested our hypothesis at an amusement park, a place that people generally visit to experience enjoyment (Sutton, 1992; Bigné, Andreu, & Gnoth, 2005; Bigné & Andreu, 2004). In

Table 1
Zero-Order Correlation Table for Study 1

Variable	2	3	4	5
1. Ideal LAP	.35**	.45**	.20	.10
2. Ideal HAP	—	.15	.45**	−.34**
3. Actual LAP		—	.35**	−.16
4. Actual HAP			—	−.22
5. Enjoyment Difference				—

Note. LAP = low arousal positive; HAP = high arousal positive.
** $p < .01$.

Table 2
Regression Analyses for Study 1

Predictor variables	DV: Recalled enjoyment difference score			
	B	SE	β	t
Unadjusted model				
Ideal LAP	.07	.09	.10	.72
Adjusted model				
Ideal LAP	**.26**	**.09**	**.39**	**2.84****
Ideal HAP	−.30	.10	−.41	−3.00**
Actual LAP	−.13	.08	−.23	−1.65
Actual HAP	−.002	.11	−.002	−.02
Order	.26	.10	.30	2.56*
Cohen's f^2 = .45				

Note. DV = dependent variable; LAP = low arousal positive; HAP = high arousal positive. Values in bold typeface indicate predicted relationships.
* $p < .05$. ** $p < .01$.

this study, we assessed participants' enjoyment of a calming ride (i.e., Ferris wheel) and an exciting ride (i.e., rollercoaster).

Study 2 Hypotheses

We predicted that the more participants valued LAP, the more they would enjoy a calming versus exciting ride (Ferris wheel vs. rollercoaster), and that these findings would hold after controlling for actual LAP, actual HAP, and ideal HAP.

Method

Participants. One hundred and sixty-three participants (47% female; age M = 29.46, SD = 9.36) at an amusement park in Vancouver, Canada, participated in a study "on amusement park rides." Participants were recruited while they were standing in line for either a Ferris wheel or a roller coaster ride. Data from 17 participants were excluded from analysis (eight did not complete the entire questionnaire; five provided suspicious responses [e.g., used the same rating across all questions], and four provided nonnormal data outside the range of 3 SD of the mean). Thus, 146 participants (47.6% female) were included in the final analyses (n = 87 for the rollercoaster and n = 59 for the Ferris wheel). Similar to Study 1, power analyses suggested that to achieve 80% power given a predicted correlation of r = .40, we needed 46 participants for each ride.

Amusement park rides. We chose one calming and one exciting ride from a popular amusement park in Vancouver, Canada, based on descriptions and pictures of the rides on the park's website. For the calming ride, we chose the Ferris wheel, which had enclosed pods and was described as having "spectacular views of the mountains, city and surrounding areas." For the exciting ride, we chose the roller coaster, which was described as a "high velocity thrill ride . . . [featuring] a thrilling double helix inver-

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[4] Across the studies, we also examined whether valuing low arousal states (still, quiet, passive) predicted enjoyment of calming versus exciting activities, but this relationship was not significant in any of the studies.

sion." We conducted a manipulation check to ensure that the rides elicited the intended emotions.

Measures.

Ideal and actual affect.   To measure ideal affect and actual affect, we used an abridged version of the AVI (Tsai et al., 2006). To assess ideal affect, we asked participants to rate how much they would "ideally like to feel" 10 feelings "during a typical week" on a 1 (*never*) to 5 (*all of the time*) scale. To assess actual affect, we asked participants to use the same scale to rate how much they actually feel the same states during a typical week. The 10 affective states sampled different octants of the affective circumplex: enthusiastic, happy, calm, inactive, bored, sad, anxious, aroused, excited, and relaxed. Because of time constraints, we could not include the entire AVI. Scores for ideal and actual LAP were calculated using the mean of calm and relaxed (ideal LAP α = .75; actual LAP α = .63), and scores for ideal and actual HAP were calculated using the mean of excited and enthusiastic (ideal HAP α = .57; actual HAP α = .58).[5]

Demographics.   Participants completed a demographics questionnaire including age, gender, and ethnicity.

Experienced emotions.   Immediately after disembarking from the ride, participants rated how much they felt happy, bored, calm, surprised, inactive, excited, scared, and sad during the ride using a 1 (*not at all*) to 5 (*extremely*) scale, how much they enjoyed the ride using a 1 (*not at all*) to 5 (*extremely*) scale, how negative/positive the ride made them feel using a 1 (*very negative*) to 7 (*very positive*) scale, and how aroused the ride made them feel using a 1 (*not at all aroused*) to 7 (*very aroused*) scale. We converted the 7-point scales to 5-point scales to be consistent with the AVI, and then created an enjoyment aggregate by averaging ratings of happiness, enjoyment, and positive feelings (calming ride, α = .82; exciting ride, α = .84). We did not create a difference score because the study design was between subjects (i.e., people rode either the calming or the exciting ride).

Procedure.   Fifty-nine participants were approached by research assistants while they were waiting to ride the Ferris wheel; 87 participants were approached by research assistants while they were waiting to ride the roller coaster. Some of these participants knew each other because they were in line together. Research assistants explained that they were conducting a study on the effects of different park rides on feelings. Participants who agreed to be part of the study provided verbal consent. While they were in line for the ride, participants then completed a pre-ride questionnaire, which assessed ideal and actual affect, and demographics. Participants returned the completed questionnaire to the research assistant prior to going on the ride. Participants then went on the ride. Immediately after disembarking from the ride, research assistants approached participants again and handed them a post-ride questionnaire. During each assessment, participants were instructed not to discuss or share their responses with others. Participants completed the questionnaire, were debriefed, and were given a food voucher as compensation for their participation.

Study 2 Data Analyses and Results

Manipulation check.   Before testing our hypotheses, we assessed whether the Ferris wheel elicited more calm and less excitement than the rollercoaster. We conducted two independent sample *t* tests to compare reports of calm and excitement on the

rides. As expected, participants reported experiencing more calm during the ferris wheel (M = 3.52, SD = 1.17) than the roller coaster (M = 2.15, SD = 1.21), $t(143)$ = −6.76, $p < .001$, and more excitement during the roller coaster (M = 3.75, SD = .89) than the Ferris wheel (M = 2.86, SD = 1.17), $t(144)$ = 5.17, $p <$ .001. Mean enjoyment ratings during the calm ride and the excited ride did not significantly differ (Ferris wheel, M = 3.66, SD = .69; roller coaster, M = 3.73, SD = .74), $t(144)$ = .55, p = .58.

To test our hypotheses, we conducted multiple regression analyses for each ride, in which the enjoyment score was the dependent variable and ideal LAP was the predictor variable; actual LAP, actual HAP, and ideal HAP were treated as covariates. Results are reported in Tables 3 and 4.

Is valuing LAP related to enjoyment of the calming ride? Because the study was a between-subjects design, we had to examine the relationship between ideal LAP and enjoyment separately for the Ferris wheel and rollercoaster rides. As predicted, the more participants valued LAP, the more they enjoyed the Ferris wheel (β = .40, p = .002). However, ideal LAP was not correlated with enjoyment of the rollercoaster (β = −.10, p = .442). Actual LAP, actual HAP, and ideal HAP were not significantly associated with enjoyment of either ride. Consistent with the full model, when we only included ideal LAP in the regression model, ideal LAP was significantly related to enjoyment on the Ferris wheel (β = .42, p = .001) but not significantly related to enjoyment on the rollercoaster (β = −.03, p = .81).

Did participants in line for the calming ride and those in line for the exciting ride differ in their ideal affect? Because we were unable to randomly assign participants to go on the Ferris wheel or rollercoaster, we also examined whether there were differences in ideal affect between participants who chose to go on each ride. Participants who were in line for the Ferris wheel valued LAP more than participants who were in line for the rollercoaster when controlling for actual LAP—$F(1, 143)$ = 3.44, p = .066, Ferris wheel, M = 3.96, SE = .11; rollercoaster, M = 3.70, SE = .09—although this difference only approached significance.

Study 2 Discussion

Consistent with Study 1, the more participants wanted to feel LAP, the more they actually enjoyed the Ferris wheel. Valuing LAP, however, was not significantly related to enjoyment of the exciting ride. These findings suggest that valuing LAP selectively enhances enjoyment of calming activities. However, because participants were already in line for either the Ferris wheel or rollercoaster before they were recruited to the study, our findings could be due to self-selection. Indeed, participants in line for the ferris wheel marginally valued LAP more than those in line for the rollercoaster. Therefore, we conducted a third study where we brought participants to an amusement park and instructed them to go on both calming and exciting rides. We also collected data in the United States and Hong Kong to see if the relationship between ideal LAP and enjoyment of calming (vs. exciting) rides held in cultures that differed in the value placed on LAP (Tsai, Knutson, & Fung, 2006).

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[5] These values were based on two items, and therefore, the reliability estimates were essentially Pearson correlation coefficients.

Study 3: Valuing LAP and Enjoyment of Calming (vs. Exciting) Amusement Park Rides in the United States and Hong Kong

Study 3 Hypotheses

We predicted that the more people valued LAP, the more they would enjoy a calming versus exciting ride. We predicted that these relationships would hold controlling for actual LAP, actual HAP, and ideal HAP. We tested these hypotheses in the United States and Hong Kong, contexts that vary in their emphasis on LAP and HAP (Tsai, Knutson, & Fung, 2006). On the one hand, it is possible that these relationships would be stronger in Hong Kong because Hong Kong places a greater premium on LAP states than the United States. On the other hand, because Hong Kong places a greater premium on LAP states than the United States, there may be reduced variability in ideal LAP, and therefore, it may play less of a role in influencing enjoyment of calming (vs. exciting) rides.

Study 3 Method

Participants. Twenty-nine Europeans Americans and 29 Hong Kong Chinese (72.4% female; age $M = 20.93$, $SD = 1.68$) were recruited from a Bay Area university and a Hong Kong university, for a study about amusement park rides. European American participants self-identified as White or Caucasian and were born and raised in the United States. Hong Kong Chinese participants were born and raised in Hong Kong, China, or Macau. Participants were asked to participate in the study with a friend, and therefore, they knew at least one other person in the study. Participants were compensated for their participation with free admission to a local amusement park (the site of the study). Similar to Study 1 and 2, we conducted power analyses based on a predicted correlation of $r = .40$ and 80% power and determined that we needed a total sample size of 46 participants.

Amusement park rides. European Americans went to an amusement park in Northern California, and Hong Kong Chinese went to an amusement park in Hong Kong. Participants went on seven different rides (exciting: rollercoaster, freefall; calming: Ferris wheel, sky lift, merry-go-round; two fillers: sea swing, log ride) at the local amusement park that varied in terms of how calming versus exciting they were, based on descriptions of the rides on the parks' websites. Although the Ferris wheels and sky lifts were both comparable in the United States and Hong Kong,

Table 3
Zero-Order Correlations for Study 2

Variable	1	2	3	4	5
1. Ideal LAP	—	.29*	.07	.04	.42**
2. Ideal HAP	.34**	—	−.07	.38**	.16
3. Actual LAP	.32**	.08	—	.31*	.24
4. Actual HAP	−.10	.29**	.10	—	.18
5. Enjoyment	−.03	.08	.12	.09	—

Note. LAP = low arousal positive; HAP = high arousal positive. Correlations for calming ride (above diagonal) and exciting ride (below diagonal).
* $p < .05$.   ** $p < .01$.

Table 4
Regression Analyses for Study 2

Predictor variables	DV: Enjoyment			
	B	SE	β	t
During calming ride				
Unadjusted model				
Ideal LAP	**.36**	**.10**	**.42**	**3.52*****
Adjusted model				
Ideal LAP	**.35**	**.11**	**.40**	**3.19****
Ideal HAP	.01	.13	.01	.09
Actual LAP	.16	.11	.18	1.38
Actual HAP	.10	.14	.10	.73
	Cohen's $f^2 = .30$			
During exciting ride				
Unadjusted model				
Ideal LAP	−.02	.09	−.03	−.25
Adjusted model				
Ideal LAP	−.08	.11	−.10	−.77
Ideal HAP	.10	.14	.09	.71
Actual LAP	.16	.13	.14	1.20
Actual HAP	.05	.13	.04	.37
	Cohen's $f^2 = .03$			

Note. DV = dependent variable; LAP = low arousal positive; HAP = high arousal positive. Values in bold typeface indicate predicted relationships.
** $p < .01$.   *** $p < .001$.

we focused on the skylift as the calming ride to see if our results from Study 2 generalized to a different calming ride.[6] On the sky lift, participants sat on a lift or in a cable car that took them to the other end of the park while they viewed the surrounding area. For the exciting ride, we chose the freefall rather than rollercoaster from Study 2 because the freefall rides in the United States and Hong Kong were more comparable than were the rollercoasters. On the freefall, participants were lifted vertically and then released. Although all participants rode the freefall before the sky lift, half of the participants were randomly assigned to ride a different exciting ride first, whereas the other half were randomly assigned to ride a different calming ride first. Thus, participants rode the freefall and skylift rides toward the end of the study, after they had already been on other calming and exciting rides. We conducted manipulation checks to ensure that the rides elicited the intended emotions.

Measures.

Ideal and actual affect. To assess ideal affect and actual affect, we asked participants to complete the full version of the AVI (see Study 1) at home prior to going to the amusement park. LAP items included calm, peaceful, serene, and relaxed; HAP items included excited, enthusiastic, elated, and euphoric. Actual and ideal LAP and HAP aggregates showed good internal consistency (European Americans: actual LAP $\alpha = .83$; ideal LAP $\alpha = .79$; actual HAP $\alpha = .85$; ideal HAP $\alpha = .73$; Hong Kong Chinese:

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[6] The U.S. rollercoaster was more rickety and jerky than the Hong Kong rollercoaster, and the U.S. merry-go-round had a clown's face that riders tried to throw rings in, which the Hong Kong merry-go-round did not have. The Ferris wheels in the United States and Hong Kong, however, were comparable. In both the United States and Hong Kong, ideal LAP was significantly related to enjoyment on the Ferris wheel ($\beta = .61$, $p = .004$), which replicated Study 2 results.

actual LAP α = .82; ideal LAP α = .68; actual HAP α = .81; ideal HAP α = .87). Participants also completed a demographics questionnaire that asked for their age, year in school, gender, ethnicity, country of birth, and parents' and grandparents' countries of birth.

Experienced emotions. Immediately after each ride, participants rated how happy, content, sad, unhappy, excited, elated, calm, relaxed, scared, nervous, bored, sluggish, surprised, alert, inactive, idle they felt during the ride; how negative/positive; and how aroused they felt. They also rated how much they enjoyed the ride and how satisfied they were with the ride. We calculated a mean enjoyment aggregate that was comprised of ratings of enjoyment, satisfaction, positive feelings, happiness, and contentment (calming ride: European Americans α = .95, Hong Kong Chinese α = .92; exciting ride: European Americans α = .91, Hong Kong Chinese α = .93). We created an enjoyment difference score by subtracting the reported enjoyment of the freefall from that of the skylift, so that positive values indicated greater enjoyment of the calming versus exciting ride.

Procedure. Participants completed questionnaires via the web at home. Participants were transported to or met research assistants at the amusement park, and then were divided into groups of six to eight participants. Research assistants led each group. Participants were given a notebook to carry with them so that they could complete measures of their affective responses after each ride. After completing each rating form, participants gave the form to the research assistant(s) leading their group. Participants were asked not to share their responses with anyone.

Study 3 Data Analyses and Results

Five Hong Kong Chinese participants chose not to go on the freefall ride and therefore were excluded from the analyses. In contrast, all European Americans went on the freefall ride. All participants went on the sky lift.

Manipulation check. To ensure that the freefall elicited less LAP and more HAP than the sky lift, we compared ratings of LAP (calm and relaxed) and HAP (excited and elated). Paired-samples t tests revealed that participants experienced more LAP—sky lift: $M = 3.51$, $SD = .93$; freefall: $M = 1.80$, $SD = .90$; $t(52) = 10.07$, $p < .001$—and less HAP—sky lift: $M = 2.05$, $SD = .95$; freefall: $M = 3.63$, $SD = 1.04$; $t(52) = -8.35$, $p < .001$—on the sky lift compared to the freefall. These findings held across cultural groups.

Is valuing LAP related to enjoyment of calming (vs. exciting) rides across cultures? To examine whether ideal LAP increased enjoyment of the calming versus exciting ride, and whether this relationship held across cultures, we conducted a regression analysis in which ideal LAP, Culture (European American coded as "0" and Hong Kong Chinese coded as "1"), and the interaction between ideal LAP and Culture were treated as predictor variables; actual LAP, actual HAP, and ideal HAP were treated as covariates, and the enjoyment difference score was treated as the dependent variable. In the analyses, we centered ideal and actual LAP and HAP to reduce multicollinearity between ideal LAP and the interaction term (Frazier, Tix, & Barron, 2004). As predicted, there was a significant relationship between ideal LAP and the enjoyment difference score ($\beta = .46$, $p = .03$): the more participants valued LAP, the more they enjoyed the calming versus exciting ride. There was a significant main effect of culture, with Hong Kong

Chinese enjoying the sky lift (vs. freefall) more than European Americans ($\beta = .29$, $p = .04$; see Tables 5 and 6). None of the other variables, including the Culture × Ideal LAP interaction ($\beta = -.14$, $p = .43$) and ideal HAP ($\beta = -.17$, $p = .32$) were significantly correlated with the difference score, suggesting that the relationship between ideal LAP and enjoyment of calming activities held across cultural groups. Similar to the full model, when we only included ideal LAP in the model to predict enjoyment, we found a significant positive relationship ($\beta = .27$, $p = .048$). Please see the online supplementary materials for separate analyses of enjoyment of each ride.

Study 3 Discussion

As we predicted, the more participants valued LAP, the more they enjoyed the calming (vs. exciting) ride. This held in both the United States and Hong Kong. Thus, findings from Studies 1–3 suggest that as predicted, valuing LAP increases enjoyment of calming versus exciting activities. Again, these findings are specific to ideal LAP; ideal HAP did not correlate with enjoyment of calming (vs. exciting) rides. Furthermore, actual LAP and HAP did not predict enjoyment of calming versus exciting rides.

Interestingly, and consistent with cultural differences in ideal affect, Hong Kong Chinese reported enjoying the skylift (vs. freefall) more than European Americans; however, because Hong Kong Chinese and European Americans were at different amusement parks, it is impossible to know definitively whether this difference reflects cultural differences in enjoyment of the rides, or subtle differences in the rides themselves.

Although using amusement park rides allowed us to examine the relationship between ideal LAP and enjoyment of calming (vs. exciting) activities in an environment where people go to have fun, there are several limitations. All rides (both calming and exciting) involved being high in the air, which could be an issue for participants who are afraid of heights. Thus, even the calming rides may have increased physiological arousal. Although participants reported that the calming rides were indeed more calming than the exciting rides, we needed to examine whether the relationship between ideal LAP and enjoyment of calming (vs. exciting) rides generalized to other activities. Another limitation of Studies 1–3 is that they were all correlational in design. Therefore, we conducted a final study in which we manipulated ideal affect to assess its effect on enjoyment of low versus high intensity exercise in the lab. We chose exercise because (a) previous studies have demonstrated that people experience positive affect after engaging in acute exercise (Reed & Ones, 2006); (b) we wanted to examine whether valuing LAP could increase enjoyment of calming (vs.

Table 5
Zero-Order Correlations for Study 3

Variable	2	3	4	5
1. Ideal LAP	.23	.50**	.22	.27*
2. Ideal HAP	—	.06	.56**	−.06
3. Actual LAP		—	.29*	.15
4. Actual HAP			—	.08
5. Enjoyment difference				—

Note. LAP = low arousal positive; HAP = high arousal positive.
* $p < .05$. ** $p < .01$.

Table 6
Regression Analyses for Study 3

Predictor variables	DV: Enjoyment difference score			
	B	*SE*	β	*t*
Unadjusted model				
Ideal LAP	**.54**	**.27**	**.27**	**2.02**[*]
Adjusted model				
Ideal LAP	**.92**	**.41**	**.46**	**2.26**[*]
Ideal HAP	−.32	.32	−.17	−1.00
Actual LAP	−.11	.29	−.06	−.37
Actual HAP	.17	.32	.09	.52
Culture	.73	.34	.29	2.11[*]
Culture × Ideal LAP	−.44	.56	−.14	−.79
	Cohen's f^2 = .24			

Note. DV = dependent variable; LAP = low arousal positive; HAP = high arousal positive. Values in bold typeface indicate predicted relationships.
[*] $p < .05$.

exciting) activities that are more mundane (and therefore, more likely to be part of people's daily lives) than amusement park rides; (c) we wanted to more directly manipulate participants' levels of physiological arousal thus ensuring that participants experienced lower arousal during the calming activity compared to the exciting activity; and (d) we wanted to examine the link between valuing LAP and enjoyment of calming (vs. exciting) activities under more controlled laboratory conditions.

Study 4: Does Manipulating Ideal Affect Increase Enjoyment of Low Versus High Intensity Exercise?

To manipulate participants' ideal LAP in the moment, participants were told that they would engage in a study about the relationship between "personality and cognitive processes." We manipulated participants' ideal affect by having them prepare for a task that required them either to "breathe deeply and let your body be at ease" (value LAP condition), or to "energize your mind and body" (control condition). To ensure that this manipulation worked, we first examined the effects of these manipulation instructions on momentary reports of ideal LAP, actual LAP and HAP, and ideal HAP. In the larger study, we then used these same instructions to manipulate ideal LAP, and then examined the effect of this manipulation on participants' immediate enjoyment of low versus high intensity exercise on a treadmill. We did not assess momentary reports of ideal and actual affect in the larger study to reduce the possibility of experimenter demand.

Study 4a: Did the Manipulation Alter Momentary Ideal Affect?

Study 4a Hypotheses. We predicted that participants assigned to the value LAP condition would value LAP more than participants assigned to the control condition. We did not predict differences in actual LAP, actual HAP, or ideal HAP.

Study 4a Method

Participants. Fifty-nine American college students (59.3% female; Age *M* = 21.39, *SD* = 3.14) participated in a study of

"personality and cognitive processes" and were compensated with either $6 or partial course credit for their participation. Of these participants, 45.8% self-identified as European American; 13.6% as Hispanic, 16.9% as East Asian; 3.4% as African American, 5.1% as multiracial, 5.1% as Southeast Asian, 3.4% as Middle Eastern, 3.4% as South Asian, and 3.4% as Eastern European. Based on previous work that manipulated ideal affect (Tsai, Miao, et al., 2007), we aimed to include 30 participants per condition for the preliminary study; however, we had to drop data from eight participants (five were suspicious of the true nature of the study, and three predicted our hypotheses). Our final analyses were therefore based on 51 participants (24 in the value LAP condition and 27 in the control condition).

Measure of momentary ideal and actual affect. We assessed momentary ideal and actual affect using the AVI (Tsai et al., 2006). To assess momentary ideal affect, we asked participants to rate how they "would ideally like to feel" 30 feelings "right now" on a scale of 1 (*not at all*) to 5 (*extremely*). To assess momentary actual affect, we asked participants to rate how much they "actually feel" 30 states "right now" using the same scale. The AVI included the same 30 affective states as previous studies. The LAP items were calm, peaceful, serene, and relaxed; the HAP items were excited, enthusiastic, elated, and euphoric. Internal consistencies of these items were high (actual LAP, α = .82; ideal LAP, α = .86; actual HAP, α = .81; ideal HAP, α = .82).

Procedure. The experimenter told participants that the study examined the relationship between personality measures and performance on a cognitive task. The experimenter then gave instructions about the cognitive task, a game called "Mindflex Duel" (Neurosky, 2011). In the game, participants put on a headset with a sensor, which powered a fan in the game console that levitated a ball at varying heights depending on the speed of the fan. Participants first watched a short video that explained how the game worked (available upon request). Participants were then randomly assigned to one of two conditions: (a) value LAP or (b) control. Participants in both conditions were told that their goal was to float the ball under the bar as much as possible. Participants in the value LAP condition were told to "breathe deeply and let your body be at ease" and "clear your mind and let your thoughts come and go," whereas participants in the control condition were told to "energize your mind and body" and "look directly at the ball, imagine propelling it up with your mind." We included HAP states in the control condition to provide a stark contrast to the value LAP condition.[7]

Participants put on the headset, and the experimenter turned on the game console. The experimenter turned on the headset and waited for the game console to recognize the headset. There was then a "malfunction" with the headset in which the headset was unable to connect to the game console (in actuality, the batteries in the headset were dead). The experimenter then told the participant that she would get a spare headset from another lab room and that in the meantime, the participant could fill out the questionnaires, which included the momentary AVI. After 5 min, the experimenter

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[7] As mentioned above, the control condition was originally intended to increase momentary ideal HAP. However, because we were not successful in manipulating ideal HAP in the preliminary study, we used this condition as a control.

returned with the working headset, asked the participant to complete the questionnaires, and instructed the participant to play the game for one minute. Participants were then probed for suspicion and debriefed about the true nature of the study.

Study 4a: Analyses and Results

To examine whether we were effective in manipulating ideal affect, we conducted a one-way analysis of variance (ANOVA) by condition (value LAP more, control) on momentary ideal LAP, controlling for momentary actual LAP. As predicted, this analysis revealed a significant main effect of condition (value LAP, $M =$ 4.18, $SE = .17$; control, $M = 3.67$, $SE = .17$), $F(1, 48) = 5.05$, $p = .03$, partial $\eta^2 = .10$, with participants in the value LAP condition wanting to feel LAP more than those in the control condition (Figure 1, top). This finding held when we did not control for actual LAP.

To examine whether the manipulation altered ideal HAP, we conducted a similar analysis on ideal HAP, controlling for actual HAP. There were no differences by condition in ideal HAP (value LAP, $M = 3.26$, $SE = .18$; control, $M = 3.38$, $SE = .17$, $F(1, 48) = .24$, $p = .63$, partial $\eta^2 = .01$. To ensure that the manipulation did not alter actual LAP or actual HAP, we conducted independent samples t tests on actual LAP (value LAP, $M = 2.48$, $SE = .16$; control, $M = 2.53$, $SE = .14$), $t(49) = .23$, $p = .82$, and actual HAP (value LAP, $M = 2.06$, $SE = .16$; control, $M = 2.05$, $SE = .13$), $t(49) = -.08$, $p = .94$: There were no significant differences in actual LAP or actual HAP between conditions. Thus, the manipulation selectively altered ideal LAP.
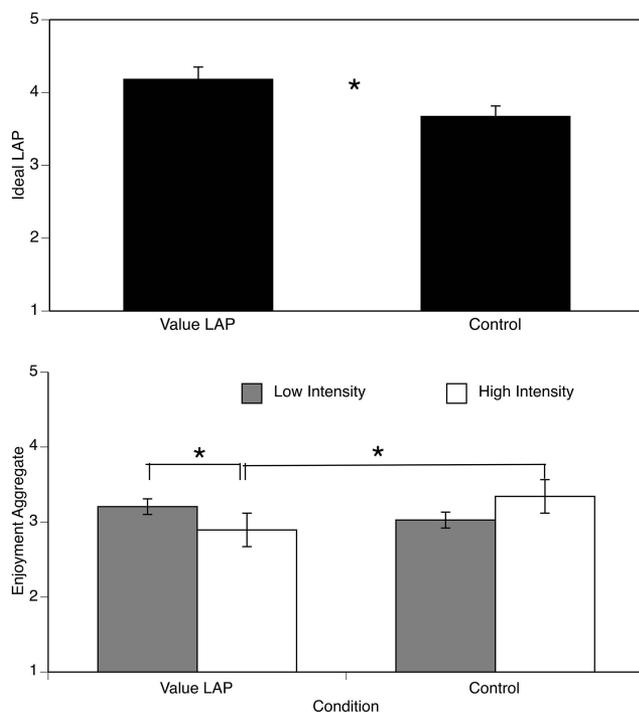
In sum, the experimental manipulation successfully altered momentary ideal LAP: participants in the value LAP condition valued LAP more than participants in the control condition. Although our control condition did include some emphasis on HAP states, there was no difference in ideal HAP across conditions. There were also no differences in actual LAP or actual HAP. We used this exact manipulation in the larger study to examine whether increasing ideal LAP would increase enjoyment of low (vs. high) intensity exercise.

Study 4b Hypotheses

We predicted that participants in the value LAP condition would enjoy low versus high intensity exercise more than participants in the control condition.

Study 4b Method

Participants. One hundred and fifteen American college students participated in a study on "cognition, personality, mood, and exercise" and were compensated with either $12 or partial course credit in exchange for their participation (68.7% female; age, $M =$ 19.07, $SD = 1.29$). Data from 10 participants were excluded from analysis (three participants encountered a treadmill malfunction and could not continue with the study; two participants had missing affect ratings; and five participants could not recall the instructions for Mindflex Duel at the end of the study). Thus, 105 participants were included in the final data analyses (52 in the value LAP condition, 53 in the control condition). Initially, the study was intended to be a mixed model design with experimental condition as the between-subjects factor and exercise (high vs. low) as the within-subjects factor. For this design, we determined that we needed at least 38 participants per experimental condition to achieve 80% power given an effect size f = .30 (based on the pilot study) and a correlation between measures of $r = .20$ (based on the correlation between dependent variables in our previous studies).

High and low intensity exercise. Participants completed two 6-min bouts of exercise on the treadmill: (a) high intensity and (b) low intensity in counterbalanced order. For each bout of exercise, participants were asked to keep their heart rate within a specific target range. We defined low intensity exercise as 15–30% of participants' heart rate reserve (HRR), which was similar to walking on the treadmill, and high intensity exercise as 70–85% of participants' HRR, which was similar to running on the treadmill.

Instruments.

Heart rate. Resting heart rate was measured using a Polar© heart rate monitor. To manipulate arousal levels and to ensure they were consistent across participants, we calculated the intensity of the exercise based on participants' HRR. HRR was calculated using the Karvonen Method by subtracting the participant's resting heart rate from the maximum heart rate (220 – age; Karvonen, Kentala, & Mustala, 1957).

Experienced emotion. Immediately after each bout of exercise, participants rated how they actually felt during the bout of exercise using the same affective states and rating scales as in the previous studies. We created an enjoyment aggregate for each type of exercise by averaging the ratings of happiness, content, enjoyment, satisfaction, and positive feelings (low intensity exercise $\alpha = .82$, high intensity exercise $\alpha = .87$).

Figure 1. Effect of condition on ideal low arousal positive states (LAP) in Study 4a (top), and enjoyment of low versus high intensity exercise in Study 4b (bottom). * $p < .05$.

Procedure. Participants were advised to wear gym clothes for the study. Participants completed baseline measures of their current mood and then heart rate monitors were attached to participants; the heart rate monitor transmitted the heart rate data to the treadmill so that it could be monitored during each bout of exercise. The experimenter then measured participants' resting heart rate.

Participants were randomly assigned to one of the two conditions: value LAP or control. Participants were then instructed about the cognitive task they would complete at the end of the study. The instructions were the same as those in Study 4a described above. Next, experimenters told participants that we were interested in whether exercise would help improve or inhibit task performance, so before completing the task, they would complete two 6-min bouts of exercise on the treadmill (low vs. high intensity exercise). Prior to the first bout of exercise, the experimenter showed participants how to adjust the treadmill speed and incline. Immediately after each bout of exercise, participants rated how they felt. As mentioned above, the order of the low and high intensity exercise was counterbalanced. After completing both bouts of exercise, participants completed the Mindflex Duel game and were debriefed.

Study 4 Data Analyses and Results

Initial analyses revealed that participants who did the low intensity exercise after the high intensity exercise had difficulty lowering their HR to the desired range. Therefore, we decided only to analyze the data from the first exercise participants completed, essentially converting the study from a mixed design to a between-subjects design (i.e., 2 [condition: value LAP, control] $\times$ 2 [exercise: low, high]). Thus, 52 participants were in the value LAP condition (27 low intensity, 25 high intensity), and 53 participants were in the control condition (27 low intensity, 26 high intensity).

Manipulation check. To ensure that the low and high intensity exercises elicited differences in LAP, we conducted independent samples t tests on these variables. As expected, participants who engaged in low intensity exercise reported more LAP than participants who engaged in high intensity exercise (low: $M = 2.82$, $SE = .11$, high: $M = 2.47$, $SE = .11$), $t(103) = 2.25$, $p = .027$. There was no significant difference between how much HAP participants experienced in low and high intensity exercise conditions (low: $M = 2.64$, $SE = .12$, high: $M = 2.88$, $SE = .09$), $t(103) = -1.65$, $p = .10$.

We also examined the average percentage of HRR for the high intensity and low intensity exercise to ensure that the two bouts of exercise elicited different levels of physiological arousal. An independent samples t test revealed that as expected, participants in the low intensity condition had a significantly lower percent heart rate reserve during the exercise ($M = .24$, $SE = .02$) compared to participants in the high intensity condition ($M = .63$, $SE = .01$), $t(97) = -17.80$, $p < .001$.

Do participants in the value LAP condition enjoy low versus high intensity exercise more than participants in the control condition? To test our hypothesis, we conducted a 2 (condition: value LAP, control) $\times$ 2 (exercise: low, high) between-subjects ANOVA. The main effects of condition, $F(1, 101) = 2.37$, $p = .13$, partial $\eta^2 = .02$, and exercise, $F(1, 101) = .26$, $p = .61$, partial $\eta^2 = .003$, were not significant. However, as predicted,

analyses revealed a significant Condition $\times$ Exercise interaction, $F(1, 101) = 6.18$, $p = .015$, partial $\eta^2 = .058$. Participants in the value LAP condition who engaged in low intensity exercise reported greater enjoyment ($M = 3.22$, $SD = .44$) than did those who engaged in the high intensity exercise ($M = 2.89$, $SD = .59$), $t(50) = 2.28$, $p = .027$. There were no significant differences in enjoyment between control participants who engaged in low intensity and those who engaged in high intensity exercise (low intensity $M = 3.12$, $SD = .58$; high intensity $M = 3.34$, $SD = .62$, $t(51) = -1.32$, $p = .19$). Participants in the value LAP condition also reported less enjoyment of the high intensity exercise compared to participants in the control condition, $t(49) = -2.59$, $p = .013$, see Figure 1 (bottom).

Study 4 Discussion

In Study 4, we found some causal evidence that increasing the value placed on LAP enhanced the enjoyment of low versus high intensity exercise. In addition, the results demonstrate that valuing LAP can increase enjoyment of calming (vs. exciting) activities that are more mundane, such as low versus high intensity exercise. One limitation is that because we were concerned that including a measure of ideal affect after the manipulation would draw too much attention to our hypotheses, we did not include it in Study 4b. As a result, we could not examine whether momentary ideal LAP mediated the effect of the manipulation on experienced enjoyment.

General Discussion

Across four studies, we found consistent evidence that the more people value calm and other low arousal positive states, the more they actually enjoyed calming versus exciting activities. These findings held across cultural contexts that have been shown to vary in their ideal affect (the United States and Hong Kong) and across different activities (recalled events, amusement rides, exercise).

Importantly, in only one study (Study 1) did we find that valuing HAP reduced enjoyment of calming versus exciting activities, and this occurred when participants recalled calming and exciting events from their own lives. In the other studies, when we controlled the types of activities and assessed enjoyment immediately after the activities, we found no links between ideal HAP and enjoyment of calming versus exciting activities, despite the fact that we have observed clear links between ideal HAP and preference for exciting products and people in previous work (e.g., Tsai, Chim, & Sims, 2015; Sims et al., 2014; Sims & Tsai, 2015; Sims et al., in press). As mentioned at the outset of this article, we suspect that the exciting rides and high intensity exercise, while more exciting than the calming rides and the low intensity exercise, did not match the exciting events that participants recalled from their own lives. Based on the findings from Study 1, exciting events—at least in the United States—involve uncertainty and achievement (e.g., winning a national competition) more than calming events. We are currently trying to develop ways of simulating these types of events in the lab to examine whether valuing HAP increases enjoyment of exciting (vs. calming) activities.

Across the studies, we found no relationships between how much people reported actually feeling LAP or HAP states over the course of a typical week and their enjoyment of calming versus

exciting events/activities. These findings are consistent with AVT, which argues that ideal affect differs from actual affect. Although global ideal affect should predict enjoyment of events/activities that elicit the valued affect, global actual affect (or how people feel on average) should predict people's responses to events/activities in general. Thus, the more people feel LAP on average, the more they should feel LAP in response to calming as well as exciting events/activities. Consistent with this prediction, participants' actual LAP correlated with how calm they recalled feeling during exciting, $r(53) = .47$, $p < .001$, and calming events, $r(53) = .22$, $p = .10$ (although this was marginally significant) in Study 1, and how calm they felt on the rollercoaster (an exciting ride), $r(82) = .24$, $p = .03$ in Study 2, controlling for actual HAP, ideal LAP, and ideal HAP. Future studies should examine the specific conditions under which global actual versus ideal affect is more predictive of people's responses, as well as the variables (e.g., personality) that might contribute to these effects.

Implications for AVT and Research on Emotion

AVT proposes that ideal affect predicts the type of activities people engage in to feel good. One implication is that people derive more enjoyment from activities that match their ideal affect than those that do not, which may be what motivates them to seek out those experiences. The present findings provide the first empirical demonstration that this is the case for ideal LAP: Valuing LAP enhances people's actual enjoyment of calming (vs. exciting) activities. In addition, this work provides another demonstration of how people's ideal affect shapes their affective experiences (see Sims et al., 2015) and suggests that one important source of variation in how people respond to different events/activities may be the match between people's ideal affect and the affective properties of those events/activities.

These findings also have important implications for research on emotion and other affective processes. First, the work highlights calm and other low arousal positive states, which have received relatively little attention in the empirical literature. Second, the work suggests that how people ideally want to feel may play an even greater role in predicting how people respond to activities that match their ideal affect than how people actually feel on average. Third, this work speaks to increasing research examining the relationship between wanting and actually experiencing happiness. For instance, previous studies suggest that valuing extreme happiness hinders the actual experience of happiness (Mauss et al., 2011; Schooler, Ariely, & Loewenstein, 2003). However, our findings demonstrate that wanting to feel calm and other LAP enhances the enjoyment of calming (vs. exciting) activities, suggesting that the harmful effects of wanting to feel happy may depend on the specific type of happiness people want to feel (Mauss et al., 2011). Clearly, more work is needed to clarify the conditions under which wanting to feel happiness enhances versus diminishes the experience of happiness.

Finally, these findings suggest that in order for individuals to derive the most enjoyment from an activity—at least calming ones—they must value the affective properties of that activity. These findings have implications for interventions aimed at improving well-being. For instance, they suggest that before interventions can actually improve well-being, therapists and counselors should focus first on getting patients to value the states elicited by the intervention. Furthermore, they suggest that individual and cultural differences in responses to various happiness interventions (e.g., Layous et al., 2013) may be due to individual and cultural differences in ideal affect.

Limitations and Future Directions

Our findings were limited in several ways. First, we focused on valuing LAP and experienced enjoyment during calming versus exciting events/activities. While ideal HAP did predict lesser enjoyment of calming (vs. exciting) recalled events in Study 1, it did not predict enjoyment of calming (vs. exciting) amusement park rides or exercise in Studies 2–4. Although this might suggest that ideal HAP is not associated with enjoyment of calming (vs. exciting) activities, it is also possible that we did not effectively elicit excitement in the field or the lab. Indeed, riding a freefall and running on a treadmill are qualitatively different from winning a national competition or getting into college. Thus, future studies are needed to develop tasks that may be more comparable to people's recalled exciting events in order to examine whether ideal HAP is related to enjoyment of exciting (vs. calming) activities.

Second, we measured emotional experience immediately after participants went on the amusement park rides and immediately after exercise because we were concerned that assessing affect during the activity would interfere with participants' experience of the activity. However, future studies should assess enjoyment of these activities online (i.e., at various points while they are engaging in the activity). Third, our measure of enjoyment was based on self-report, and therefore, is susceptible to all of the limitations of self-report. Moreover, it is possible that participants may have interpreted the enjoyment aggregate as higher or lower in arousal depending on their ideal affect. Although previous work demonstrates that variation in people's actual affect does not affect their mental representations of affect (Barrett & Fossum, 2001), no one has examined whether variation in people's ideal affect does. That is, people who value LAP may have interpreted the enjoyment aggregate as being more LAP compared to people who value LAP less. Thus, in future studies, it would be important to include other assessments of enjoyment, especially behavioral measures such as facial expression.

Fourth, in Studies 2–4 we chose calming and exciting activities that are similar in type (e.g., exercise, amusement rides) to ensure that the differences were due to the affective states elicited, and not to other confounding factors. Future studies may want to expand this and compare more varied exciting and calming activities. Fifth, although we examined whether the relationship between ideal LAP and enjoyment of calming (vs. exciting) activities was moderated by culture in Study 3, the study design did not allow us to examine whether ideal affect mediates cultural differences in enjoyment of calming (vs. exciting) activities. Future studies should directly examine whether this is the case, as well as the role of personality and other individual difference variables. Finally, it would be important to examine how these processes unfold over time: do calming activities become less enjoyable over time, and if so, how does valuing calm influence this process?

In conclusion, as predicted by AVT, the more people valued calm and other low arousal positive states, the more they enjoyed calming versus exciting rides and low versus high intensity exer-

cise. Together, these findings suggest that people enjoy activities more if they match their ideal affect.

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