**WEB APPENDIX A: RESEARCH ON TEMPERATURE AND AGGRESSION**

We summarize research within each of these streams in the following tables:

1) The effect of temperature on aggressive behaviors

2) The effect of hues on aggression

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLE 1: RESEARCH ON EFFECT OF TEMPERATURE ON AGGRESSION** | | | | | | | | |
| **Source** | **Setting** | **Area** | **Measure** | **General Temperature Effect** | **Temperature Measures** | **Behavioral Mechanism Measured** | **Overall Purchase DV** | **Findings** |
| Anderson (1989) | Field study | Physical aggression | Violent crime, spouse abuse, horn honking, electric shock | Y | Days, months, years, seasons and regions | Y | N | Hot temperatures yield relatively more aggressive behaviors such as murders, rapes, assaults, riots, and wife beatings, among others. |
| Anderson et al. (2000) | Field study | Aggressive tendencies | Violence | Y | geographic domain, time period, and concomitant measures | N | N | Higher temperatures induce aggression. |
| Anderson and Anderson (1996) | Field study | Culture of violence effects | Violent crime rates | Y | Range 32-90oF | N | N | Similar-sized cities with higher (vs. lower) temperatures have higher crime rates. |
| Anderson and Anderson (1998) | Field study | Aggressive tendencies | Assault rates | Y | Range 56-96oF | N | N | Assault rates are higher during summer months relative to other times of the year. |
| Anderson, Bushman, and Groom (1997) | Experiment | Aggressive tendencies | Violent assault and property crime rates | Y | US annual average temperature | N | N | Years with hotter temperatures do lead to higher assault and murder rates, even after controlling for several other variables. |
| Anderson and Bushman 2002 | Field Study, experiment | Media violence and aggression. | Aggression and violence | Y | Hours of TV viewing | N | N | A heavy diet of media violence contributes to a societal violence rate. |
| Baron and Bell (1975) | Experiment | Physical aggression | Electric shock | Y | Range 72-95oF | Y | N | High temperatures lead to aggression in absence of other negative sources of affect. |
| Bell and Baron (1978) | Experiment | Physical aggression | Electric shock | Y | Range 64-95oF | N | N | Find a curvilinear relationship between negative affect and aggression. |
| Cao and Wei (2005) | Field study | Risk taking | Stock returns | Y | Average of the daily maximum and minimum temperatures | N | N | Find an overall negative correlation between temperature and stock market returns. The impact of apathy dominates that of aggression in the summer, leading to a statistically significant, negative correlation across the whole temperature range. |
| Cohn 1990 | Field study | Crime rate trends | Criminal behavior | Y | High temperature | N | N | Weather could significantly influence crime rates and criminal behavior. |
| Cohen and Rotton 1997 | Field study | Assault | Crime rate | Y | Range -18°F-104°F | N | N | Assault rates in Minneapolis decrease once temperatures increase beyond 75oF (although until 75oF assault rates increase with temperature). |
| Cotton (1986) | Experiment | Incident of crime | Civil violence | Y | Temperature data from National Weather Service for July/August. | N | N | Violent crime correlated significantly with temperature; nonviolent crime did not. |
| Craig , Overbeek, Condon, and Rinaldo (2016) | Secondary data | Aggressive penalties | NFL football penalties | Y | Range-1-109oF | N | N | In the aggressive context of football, warmer weather contributes to increased violence. |
| Hsiang, Meng, and Cane (2011) | Field study | Widespread violence | Civil conflicts | Y | Planetary-scale climate changes | N | N | Chance of civil conflicts increase (double) during El Niño years vs. La Niña years. This suggests that global climate affects stability of societies. |
| Hsiang, Burke, and Miguel (2013) | Field study | Human conflict | Various crimes | Y | Climate data | N | N | Deviations from normal precipitation and mild temperatures systematically increase the risk of conflict, often substantially. |
| Burke, Hsiang, and Miguel (2015) | Field study | Interpersonal and intergroup conflicts | domestic violence, road rage, assault, murder and rape; riots, ethnic violence, land invasions, gang violence, civil war and political instability | Y | Range 0-40oC | N | N | Both interpersonal, “such as domestic violence, road rage, assault, murder and rape,” as well as intergroup conflict, such as “riots, ethnic violence, land invasions, gang violence, civil war and other forms of political instability, such as coups”—and find that that conflict increases with temperature. |
| Kenrick and McFarlane (1986) | Field Study | Interpersonal hostility | Horn honking | Y | Range 84-108oF | N | N | Honking of horns increases with temperature. |
| Larrick, Timmerman, Carton, and Abrevaya (2011) | Field study | Retaliation | Number of teammates hit by the opposing pitchers | Y | 26-109oF | Y | N | Probability of a pitcher in a baseball game hitting a batter when provoked. |
| Montesquieu (1748/1989) | Field study | Crime | crime rate | Y | Climate data | N | N | Crimes were higher in warmer climates. |
| Park and Heal (2014) | Field study | Economic productivity | Total factor productivity (TFP) | Y | Annual average temperature | N | N | Hotter-than-average years are associated with lower income and total factor productivity for countries in hot climates and higher output per capita for countries in cold ones. |
| Van de Vliert 1999 | Field study | Cultural masculinity | Domestic political violence | Y | Average daytime temperature of the country’s capital city. | N | N | Temperature influences aggression-related cultural differences. |
| Vrij, van der Steen, and Koppelaar (1994) | Experiment | Police-offender interaction | Aggression of police officers | Y | Range 21-27oC | Y | N | Higher temperatures elicit negative assessments of offenders in police-offender interactions; leads to aggressive behaviors. |
| Sinha and Bagchi | Field study, Experiment | Auction and Negotiation | Purchase intention, willingness-to-pay, persistence | Y | Range 63-82oF | Y | Y | The influence of ambient temperature (higher vs. moderate) on consumers’ willingness to pay is contingent on the selling mechanism (auctions vs. negotiations) such that higher (vs. moderate) temperatures elicit higher willingness to pay in auctions but lead to a lower willingness to pay in negotiations. This occurs because of the effect that ambient temperature has on aggression. These findings are also extended to more general competitive settings. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLE 2: RESEARCH ON HUE AND AGGRESSION** | | | | | | | | |
| **Source** | **Setting** | **Scope** | **Area** | **Measure** | **General of Hue** | **Behavioral Mechanism Measured** | **Effects of Hue on Purchase** | **Findings** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Andersson et al. (2002) | Case study | Widowbirds | Territorial control | Color signal | Y | N | N | Widowbirds with redder collars more successful in retaining territorial control, as they are more aggressive fighters. |
| Healey, Uller, & Olsson (2007) | Case study | Lizzards | Winning contests | Dominant and subdominant behaviors | Y | N | N | Red colored male lizards tend to generally win more contests against yellow colored lizards. |
| Pryke (2009) | Experiment | Birds | Signal of aggression using hormone analysis | Probability of winning | Y | Y | N | Birds fear other red-headed birds. |
| Hill & Barton (2005) | Experiment | Individual level | Combat sports | Proportion of contests won | Y | N | N | Wearing red (vs. blue) uniforms increases likelihood of winning across a variety of Olympic sports. |
| Little & Hill (2007) | Experiment | Individual level | Sporting competition | Signaling dominance and aggression | Y | N | N | Red (vs. blue) shapes judged more dominant; red shapes are also expected to win physical competitions. |
| Bagchi & Cheema (2013) | Experiment | Individual level | Auction and negotiation | willingness-to-pay | Y | Y | Y | Incidental exposure to red (vs. blue) hues elicit greater aggression. This aggression increases willingness to pay in auctions but leads to lower offers in negotiations. |
| Sinha and Bagchi | Field study, Experiemnet | Individual level | Auction and Negotiation | Purcahse intention, willingness-to-pay, persistence | Y | Y | Y | The influence of ambient temperature (higher vs. moderate) on consumers’ willingness to pay is contingent on the selling mechanism (auctions vs. negotiations) such that higher (vs. moderate) temperatures elicit higher willingness to pay in auctions but lead to a lower willingness to pay in negotiations. This occurs because of the effect that ambient temperature has on aggression. These findings are also extended to more general competitive settings. |

**WEB APPENDIX B: STIMULI, SUDY INSTRUCTIONS, AND STUDY TEMPERATURES**

**Study 1: Auction Bidding Instructions**

There are two steps to take part in this auction.

First, for each price, when the price is announced, please indicate if you are willing to buy at this price in the table below. Please note that if you **circle NO** for a lower price (e.g., $1.50) then you should not **circle YES** for a higher price (e.g., $2.00).

Second, after indicating your response in the table below, if your answer is YES then please raise your bidder card.

Willing to Buy at this Price

1. Current Price $1.00 Yes No 14. Current Price $7.50 Yes No

2. Current Price $1.50 Yes No 15. Current Price $8.00 Yes No

3. Current Price $2.00 Yes No 16. Current Price $8.50 Yes No

4. Current Price $2.50 Yes No 17. Current Price $9.00 Yes No

5. Current Price $3.00 Yes No 18. Current Price $9.50 Yes No

6. Current Price $3.50 Yes No 19. Current Price $10.00 Yes No

7. Current Price $4.00 Yes No 20. Current Price $10.50 Yes No

8. Current Price $4.50 Yes No

9. Current Price $5.00 Yes No

10. Current Price $5.50 Yes No

11. Current Price $6.00 Yes No

12. Current Price $6.50 Yes No

13. Current Price $7.00 Yes No

**Study 2A and 2B: Instructions**

***Auction Instructions:*** You are planning a 5-night Southern Caribbean Cruise vacation during Spring break. You decide to look for a vacation package that includes shipboard accommodations, ocean transportation, all meals and beverages, and all onboard entertainment. After a lot of research, you find that vacation packages that you like range from about $700 to $1300, the more expensive packages for cruises offering you fancier rooms. Because money is a concern, you don’t want to spend any more than you have to. CruiseVacations.com lets you bid in an auction for vacation packages. The website provides information about the cruise line as well as a description of the deals, along with a listing price for the vacation package. You then bid against other consumers for the vacation package. As is common in auctions, you can either choose to make a higher bid over the current bid or not. Other bidders can similarly either offer a higher bid or not. While you would like to go on a week-long cruise, you don’t want to overpay. You also don’t want to offer a very low price, as it might get outbid and you won’t get another chance to bid on the price of this package. You find a package that includes shipboard accommodation of your choice (it includes a private balcony with a beautiful view). This package also includes ocean transportation, all meals and beverages, and all onboard entertainment. It looks like a great package indeed. You would spend a few relaxing days away from work and from studying. As you look at the pictures (see below), you think about how much you want to pay for this package.

***Negotiation Instructions:*** You are planning a 5-night Southern Caribbean Cruise vacation during Spring break. You decide to look for a vacation package that includes shipboard accommodations, ocean transportation, all meals and beverages, and all onboard entertainment. After a lot of research, you find that vacation packages that you like range from about $700 to $1300, the more expensive packages for cruises offering you fancier rooms. Because money is a concern, you don’t want to spend any more than you have to. CruiseVacations.com lets you negotiate a purchase price for vacation packages. The website provides information about the cruise line as well as a description of the deals, along with a listing price for the vacation package. You then negotiate with a Cruise Vacations seller to decide your purchase price. As is common in negotiations, you can either accept the listed price as is, or you can make a lower offer. Cruise Vacations can then either accept or reject your offer. While you would like to go on a week-long cruise, you don’t want to overpay. You also don’t want to offer a very low price, as it might get rejected and you won’t get another chance to negotiate the price of this package. You find a package that includes shipboard accommodation of your choice (it includes a private balcony with a beautiful view). This package also includes ocean transportation, all meals and beverages, and all onboard entertainment. It looks like a great package indeed. You would spend a few relaxing days away from work and from studying. As you look at the pictures (see below), you think about how much you want to pay for this package.

***Fixed-Price Instructions****:* You are planning a 5-night Southern Caribbean Cruise vacation during Spring break. You decide to look for a vacation package that includes shipboard accommodations, ocean transportation, all meals and beverages, and all onboard entertainment. After a lot of research, you find that vacation packages that you like range from about $700 to $1300, the more expensive packages for cruises offering you fancier rooms. Because money is a concern, you don’t want to spend any more than you have to. CruiseVacations.com lets you purchase vacation packages. The website provides information about the cruise line as well as a description of the deals, along with a listing price for the vacation package. You then decide if you want to purchase this package or not. While you would like to go on a week-long cruise, you don’t want to overpay. You also don’t want to reject a deal you like, as you won’t get another chance to purchase this. You find a package that includes shipboard accommodation of your choice (it includes a private balcony with a beautiful view). This package also includes ocean transportation, all meals and beverages, and all onboard entertainment. It looks like a great package indeed. You would spend a few relaxing days away from work and from studying. As you look at the pictures (see below), you think about how much you want to pay for this package.

*[Not to scale]*

****

**Study 2A: Measures Used**

|  |
| --- |
| *State-level Aggression Scale (Bryant and Smith 2001)*  (1 = Very unlike me, 7 = Very like me)(Four-subscales are in parenthesis)   1. Given enough provocation, I may hit another person right now. *(Physical Aggression)* 2. I find myself disagreeing with other people right now. *(Verbal Aggression)* 3. Right now I feel I have gotten a raw deal out of life. *(Hostile Aggression)* 4. Right now I feel like people have pushed me so far that we have come to blows. *(Physical Aggression)* 5. Right now I can’t help getting into arguments with people disagreeing with me. *(Verbal Aggression)* 6. Right now I can fly off the handle for no good reason.*(Anger)* 7. Other people right now seem to get the breaks. *(Hostile Aggression)* 8. Right now I can threaten people I know. *(Physical Aggression)* 9. Right now my friends say that I’m somewhat argumentative. *(Verbal Aggression)* 10. Right now I have trouble controlling my temper. *(Anger)* 11. I wonder why right now I feel so bitter about things. *(Hostile Aggression)* 12. Right now I feel like a powder keg ready to explode. *(Anger)* |
| *Emotional Reactions on 24-items (Mathews, Jones and Chamberlain 1990)*    Please rate each of the following items in terms of how well it describes how you are feeling right now (1 = Not at all, 7 = Very).  (Three-subscales are in parenthesis; \* items are reverse coded.)  Active, Energetic, Alert, Vigorous, Unenterprising\*, Sluggish\*, Tired\*, Passive\* *(Energetic Arousal)*  Anxious, Jittery, Tense, Nervous, Calm\*, Restful\*, Relaxed\*, Composed\* *(Tense Arousal)*  Cheerful, Contented, Satisfied, Happy, Dissatisfied\*, Depressed\*, Sad\*, Sorry\* *(Hedonic Tone)* |
| *Depletion Scale (Christian and Ellis**2011)*  Please rate each of the following items in terms of how well it describes how you are feeling right now.  (1 = Very slightly or not at all, 5 = Very much)   1. Right now, it would take a lot of effort for me to concentrate on something. 2. I feel drained. 3. I feel like my willpower is gone. 4. My mind feels unfocused right now. 5. My mental energy is running low |

**Study 2B: Measures Used**

*Emotionality Measures (Morris, Davis, and Hutchings 1981)*

Directions: To the left of each of the following statements, indicate your feelings, attitudes, or thoughts as they are right now. Use the following numerical scale:

1. The statement does not describe my present condition.

2. The condition is barely noticeable.

3. The condition is moderate.

4. The condition is strong.

5. The condition is very strong; the statement describes my present condition very well.

\_\_\_\_\_\_\_ I feel my heart beating fast.

\_\_\_\_\_\_\_ I am so tense that my stomach is upset.

\_\_\_\_\_\_\_ I have an uneasy, upset feeling.

\_\_\_\_\_\_\_ I am nervous.

\_\_\_\_\_\_\_ I feel panicky.

*Self-Esteem Scale (Rosenberg 1965)*

Instructions: Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement. [1= strongly agree, 4 = strongly disagree].

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

**Study 2C: Instructions**

You will now be taking part in a real auction.

In this auction you will be bidding on a [University] monogrammed pen. We will be providing you with $3 to take part in this study. You can use all or part of this $3 for this purpose. If you make a higher offer you will need to pay the difference out of pocket.

We will inform you on [date] if you won this auction. If you win this auction, you will have to make the payment you offered for the pen at that time. We will also give you the remaining amount (if applicable) at that time. After completing the instructions, we will tell you about the product and will ask you for the highest price you would be willing to pay for the pen (your bid).

**Study 3: Negotiation Instructions**

This is how the actual negotiation will proceed. Both parties will make offers in turn. As an illustration, consider a buyer, B and a seller, S negotiating over the price of an item. S begins by offering the item for $80.

B can either accept or reject S’s offer. Acceptance of an offer ends the negotiation. B can also reject S’s offer and make a counter offer. Say B makes a counteroffer of $60 for the item. It is now S’s turn to accept or reject B’s counter offer. Negotiation continues with alternating offers and counteroffers until agreement is reached.

It should be perfectly clear that both of you do not have to change your offer when it is your turn. However, both should not negotiate in bad faith. This means that if you are a buyer you should not make an offer that is lower than your last offer. Similarly, as a seller you should not make an offer that is higher than your last offer.

*Extremely Important - Please Read Carefully*

Remember, as part of the negotiation game, you may earn real $ based on how well you perform. As such, please read the following pointers very carefully and act upon them to maximize your earnings. Your *earnings* are a function of the *agreed price* and *number of rounds* you take to come to an agreement with the other negotiator.

If you are a buyer: As the agreed price decreases, your earnings increase.

If you are a seller: As the agreed price increases, your earnings increase.

BUT, for both buyers and sellers, as the number of rounds to reach agreement increases, your earnings decrease.

More details about the incentives will be provided at the end of the session.

So, you should always consider carefully before deciding to go through one more round of negotiation.

Read the context of your negotiation very carefully. Your focus should be to maximize your earnings across ALL separate negotiations and not just one. Next, we will randomly pair you up with another participant for the negotiation. We will also randomly assign you the role of a buyer or a seller.

**Study 4: Instructions**

You will participate in a simple grocery purchase study today. The purpose of this study is to understand how consumers make grocery purchases and how they search for deals. Our objective, thus, is to simulate a regular shopping trip at the grocery store, where consumers have an opportunity to search for coupons prior to this visit.

We will provide you with a list of 10 products that you plan to buy at your local grocery store. Your goal is to purchase these products at the lowest price possible.

Also, next to your computer is a bucket containing coupons. This bucket contains coupons for ALL the products on your shopping list. There are FOUR coupons for EACH product. For example, imagine that shampoo and cat litter are in your shopping list. For shampoo, there will be four coupons available, which will vary on the level of discount offered—the highest discount may be 15% off, while the lowest may be 5% off. For a different product, say cat litter, there will also be four coupons available, though the level of discounts may vary. Your task, thus, is to find the best coupons for each product so that you pay the LOWEST PRICE for EACH of your purchases.

Here are the products on your shopping list. The bucket contains FOUR coupons for EACH product. Find the best coupons for each product. Your task is to pay the LOWEST PRICE for EACH product.

|  |  |  |
| --- | --- | --- |
| GROCERY SHOPPING LIST | | |
| PORODUCT | | REGULAR PRICE |
| 1. | Milk (1 Gallon) | $3.99 |
| 2. | Orange Juice (64 fl oz) | $1.99 |
| 3. | Cereal (12 oz) | $4.45 |
| 4. | Bread (16 oz) | $1.69 |
| 5. | Egg (1/2 dozen) | $1.29 |
| 6. | Mixed Salad (1 lb) | $5.79 |
| 7. | Fruit Salad (1 lb) | $4.69 |
| 8. | Cooking Oil (16 fl oz) | $2.29 |
| 9. | Paper Towel (6 rolls) | $10.59 |
| 10. | Toilet paper (6 rolls) | $9.49 |

***Competitiveness Manipulation***

*Competitiveness Manipulation*

Your task, thus, is to find the best coupons for each product so that you pay the LOWEST PRICE for EACH of your purchases. We will be offering performance-based rewards. The Top 10% performers with the HIGHEST NUMBER OF PRODUCTS AT THE LOWEST PRICE will receive a $5 reward. We will inform you on [DATE] if you are one of the top performers.

*Control [without competitiveness manipulation]*

Your task, thus, is to find the best coupons for each product so that you pay the LOWEST PRICE for EACH of your purchases.

*Tightwad-Spendthrift (TW-ST) Scale (Scott, Cryder, Loewenstein 2008)*

TIGHTWAD-SPENDTHRIFT (TW-ST) SCALE

1. Which of the following descriptions fits you better? (1 = Tightwad About the same Spendthrift (difficulty spending money), 11 = neither (difficulty controlling spending)
2. Some people have trouble limiting their spending: they often spend money—for example on clothes, meals, vacations, phone calls—when they would do better not to. Other people have trouble spending money. Perhaps because spending money makes them anxious, they often don't spend money on things they should spend it on.
3. How well does the first description fit you? That is, do you have trouble limiting your spending? (1= Never, 5 = Always)
4. How well does the second description fit you? That is, do you have trouble spending money? (1= Never, 5 = Always)
5. Following is a scenario describing the behavior of two shoppers. After reading about each shopper, please answer the question that follows.
   1. Mr. A is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. A sees that the store has a “one-day-only-sale” where everything is priced 10-60% off. He realizes he doesn’t need anything, yet can’t resist and ends up spending almost $100 on stuff.
   2. Mr. B is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. B sees that the store has a “one-day-only-sale” where everything is priced 10-60% off. He figures he can get great deals on many items that he needs, yet the thought of spending the money keeps him from buying the stuff.

In terms of your own behavior, who are you more similar to, Mr. A or Mr. B? (1 = Mr. A, 5 = Mr. B)

**Table 1: Temperature Details**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Studies** | **Date** | **Outside Temperature (oF)** | | | **Lab Temperature (oF)** | |
| ***Mean*** | ***9 am*** | ***2 pm*** | ***Manipulation*** | ***Manipulation Checks*** |
|  | | | | | | |
| **Study 1** | April 12 2018 | 75.1 | 78.1 | 79.0 | 67, 77 | *M*77 = 5.51, *M*67 = 3.74 |
|  | | | | | | |
| **Study 2A** | October 14 2014 | 83.0 | 84.9 | 86.0 | 67, 77 | *M*77 = 4.09, *M*67 = 2.93 |
| October 16 2014 | 78.6 | 75.9 | 84.0 |
|  | | | | | | |
| **Study 2B** | September 19 2018 | 84.3 | 85.0 | 88.0 | 63, 70, 77, 82 | *M*82 = 5.30, *M*77 = 4.80 *M*70 = 3.44,  *M*63 = 2.73 |
| September 20 2018 | 81.9 | 87.1 | 89.1 |
|  | | | | | | |
| **Study 2C** | September 6 2016 | 79.5 | 84.0 | 80.1 | 67, 82 | *M*82 = 5.50, *M*67 = 3.54 |
| September 9 2016 | 83.8 | 86.0 | 89.1 |
|  | | | | | | |
| **Study 3** | March 7 2018 | 71.5 | 75.0 | 73.9 | 67, 77 | *M*77 = 4.53, *M*67 = 3.71 |
| March 8 2018 | 64.3 | 62.1 | 71.1 |
|  | | | | | | |
| **Study 4** | September 24 2018 | 84.3 | 84.9 | 89.1 | 67, 77 | *M*77 = 4.61, *M*67 = 3.84 |
| September 25 2018 | 84.1 | 84.9 | 89.1 |
|  | | | | | | |

**WEB APPENDIX C: DETAILED ANALYSIS**

**Study 1: Detailed Analysis**

*Analysis with Gender as a Covariate.* Using gender as a covariate in our models did not change the pattern or significance of our results for any of our dependent variables. The ANCOVA with temperature perception as the dependent measure and temperature (higher, moderate) as predictor elicited a significant main effect of temperature (*F*(1, 67) = 55.63, *p* < .0001). Gender was not significant in this model (*p* > .3).

*Pre-auction valuations.* We treated the five products as a within-subjects factor and temperature as a between-subjects factor and conducted a mixed model regression. We included gender as a covariate. As in the analysis without gender, the main effects of temperature (*F*(1, 67) = 9.28, *p* < .005) and products were significant (*F*(4, 268) = 280.47, *p* < .0001), and the interaction of temperature and product was not (*F*(4, 268) = 0.73, *p* > 0.57). The pattern of results for each of the products was also consistent with our hypotheses and the analysis without gender as a covariate; valuation was higher when temperature was higher (all *p*’s < .05). Gender was not significant in either the within-subjects analysis or in the between-subjects analysis (*p* > .67).

*Auction Behaviors*. We first analyzed each participants’ maximum auction willingness to pay. We treated the five products as a within-subjects factor and temperature as a between-subjects factor and conducted a mixed model regression as in the main paper—however, we added gender as a covariate. As in the model without gender, significant main effects of temperature (*F*(1, 67) = 39.15, *p* < .0001), product (*F*(4, 268) = 470.21, *p* < .0001), and temperature by product interaction emerged (*F*(4, 268) = 7.60, *p* < 0.0001). Furthermore, willingness to pay was higher for each product when temperature was higher versus moderate (all p’s < .0001). Gender was not significant in either the within-subjects analysis or in the between-subjects analysis (*p* > .44).

Including gender as a covariate with number of offers as the dependent variable also did not change our results. Significant main effect of temperature (*F*(1, 67) = 40.12, *p* < .0001), product (*F*(4, 268) = 17.51, *p* < .0001) and temperature by product interaction emerged (*F*(4, 268) = 4.91, *p* < 0.005). The number of offers was higher for each of the products when temperature was higher versus moderate (all *p*’s < .0001), and gender was not significant in either the within-subjects analysis or in the between-subjects analysis (*p* > .66).

**Study 2A: Detailed Analysis**

*Purchase Likelihood.* All participants (in all three mechanisms; *N* = 160) reported purchase likelihoods at the listed-price of $1000. An ANOVA with purchase likelihood as the dependent measure revealed a marginally significant effect of temperature (*M*77F = 3.81 vs. *M*67F = 3.32; *F* (1, 154) = 3.4; *p* = .066). The temperature x mechanism interaction was also significant, *F* (2, 154) = 11.82, *p* < .0001. Consistent with hypothesis 1, in auctions, bidders in the higher (vs. the moderate) temperature condition were more likely to purchase the package for $1,000 (*M*77F = 4.6 vs. *M*67F = 2.46; *F* (1, 154) = 23.26; *p* < .0001), while negotiators were less likely to purchase the vacation for $1,000 in the higher temperature condition (*M*77F = 3.15 vs. *M*67F = 4.12; *F* (1, 154) = 4.32; *p* = .039). In the fixed-price condition, however, no differences emerged (*M*77F = 3.68 vs. *M*67F= 3.36; *F* (1, 154) = .45; *p* > .5).

*Analysis with Gender as a Covariate.* We ran several ANCOVAs with temperature and mechanism as predictors, gender as a covariate, and several dependent measures (room temperature, willingness-to-pay, purchase likelihood, aggression, arousal, depletion, and mood).

Independent ANCOVAs with gender as a covariate did not change the pattern of our effects for any of our dependent variables. Room temperature: main effect of temperature: *F* (1, 153) = 37.16, *p* < .001, main effect of mechanism: *F* (2, 153) = .14, *p* > .87, and temperature x mechanism interaction: *F* (2, 153) = 6.50, *p* < .01); willingness-to-pay: main effect of temperature: *F* (1, 153) = 12.08, *p* < .01, main effect of mechanism: *F* (2, 153) = 268.44, *p* < .001, and temperature x mechanism interaction: *F* (2, 153) = 40.58 *p* < .01; purchase likelihood: main effect of temperature: *F* (1, 153) = 3.20, *p* = .076, main effect of mechanism: *F* (2, 153) = .03, *p* > .97, and temperature x mechanism interaction: *F* (2, 153) = 10.02, *p* < .001; aggression: main effect of temperature: *F* (1, 153) = 27.90, *p* < .001, main effect of mechanism: *F* (2, 153) = .58, *p* > .56, and temperature x mechanism interaction: *F* (2, 153) = 1.34, *p* >.26.

Similarly, independent ANCOVAs with gender as covariate also did not change the pattern of results for arousal, depletion, and mood. The results remained nonsignificant for arousal (main effect of temperature: *F* (1, 153) = 1.59, *p* > .21, main effect of mechanism: *F* (2, 153) = .14, *p* > .87, and temperature x mechanism interaction: *F* (2, 153) = .23, *p* > .80), depletion (main effect of temperature: *F* (1, 153) = 1.07 *p* > .30, main effect of mechanism: *F* (2, 153) = 1.90, *p* > .15, and temperature x mechanism interaction: *F* (2, 153) = 2.47, *p* = .09), and mood (main effect of temperature: *F* (1, 153) = .14, *p* > .71, main effect of mechanism: *F* (2, 153) = .12, *p* > .88, and temperature x mechanism interaction: *F* (2, 153) = .99, *p* > .33).

*Factor Analysis of Aggression Items.* We subjected the aggression measures to an exploratory factor analysis, and although an eigen value criteria (>1) would suggest a three-factor solution, a four-factor solution is consistent with theory (eigen value = .835; see Diamond and Mageletta 2006, for instance). In other studies (2B), a four-factor solution emerged. A four-factor solution explains about 84.34% of total variance and factor loadings were as expected (e.g., each item loaded on the corresponding factor; minimum loading on factor > .74 and maximum cross factor loading = .358, with majority much lower). A follow-up confirmatory factor analysis also indicated reasonably acceptable fit (goodness of fit index [GFI] = .89; comparative fit index [CFI] = .95; non-normative fit index (NNI) = .92; NFI = .92; standardized root mean square residual (SRMR) = .047). So, we used a four-factor solution (physical [3 items, *α* = .88], verbal [3 items, *α* = .91], anger [3 items, *α* = .89], and feelings of hostility [3 items, *α* = .91]).

*Mediation for Willingness-to-Pay.* We conducted additional moderated mediation analysis (model 14; Hayes 2017) using bootstrapping procedures, where temperature was the independent variable, hostile aggression was the mediator and willingness-to-pay was the dependent variable, and selling mechanism (auctions, negotiations) as moderator of the relationship between hostile aggression and willingness-to-pay. As expected, moderated mediated analysis show that none of the other factors of aggression mediated or moderated the relationship between temperature and purchase likelihood for 90% *CI* (physical = -.33 to 12.27; verbal = -.20 to 14.61; and anger = -2.45 to 10.64; the 95% results are reported in the main paper).

*Mediation for Purchase Likelihood.* We conducted a moderated mediation analysis (model 14; Hayes 2017) using bootstrapping procedures, where temperature was the independent variable, hostile aggression was the mediator and purchase likelihood was the dependent variable, and selling mechanism (auctions, negotiations) as moderator of the relationship between hostile aggression and purchase likelihood. This moderated mediation was significant (*β* = .29; *SE* = .09, 95% *CI* = .13 to .48). Specifically, the indirect effect through hostile aggression was significant both in the auction condition (*β* = .31, *SE* = .12, 95% *CI* = .11 to .56) and the negotiation condition (*β* = -.27, *SE* = .10, 95% *CI* = -.49 to -.10), but not for the fixed price condition (*β* = .02, *SE* = .06, 95% *CI* = -.09 to .15).

In addition, as expected, moderated mediated analysis show that none of the other factors of aggression mediated or moderated the relationship between temperature and purchase likelihood for 95% *CI* (for physical = -.17 to .03; verbal = -.14 to .04; and anger = -.18 to .02) or for 90% *CI* (physical = -.15 to .004; verbal = -.13 to .02; and anger = -.16 to .003).

*Positive Emotional Reactions.* We conducted an ANOVA with mood as the dependent measure and temperature and mechanism as the predictors. The effects of temperature (*F* (1, 154) = .13, *p* = .72), mechanism (*F* (2, 154) = .12, *p* = .89) and the temperature x mechanism interaction (*F* (2, 154) = .98, *p* = .38) were not significant.

*Arousal.* We assessed arousal using the 24 item scale (*α* = .72). We conducted an ANOVA with arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 154) = 1.60, *p* = .21, main effect of mechanism: *F* (2, 154) = .13, *p* = .88, and temperature x mechanism interaction: *F* (2, 154) = .23, *p* = .80). We also conducted additional analyses using the three subscales (energetic arousal, tense arousal, and hedonic tone). None of the main effects or interactions were significant.

*Energetic Arousal.* We assessed arousal using the 8-item scale (α = .94). We conducted an ANOVA with energetic arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 154) = .20, *p* = .66, main effect of mechanism: *F* (2, 154) = .33, *p* = .72, and temperature x mechanism interaction: *F* (2, 154) = .60, *p* = .55).

*Tense Arousal.* We assessed arousal using the 8-item scale (α = .87). We conducted an ANOVA with tense arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 154) = 1.57, *p* = .21, main effect of mechanism: *F* (2, 154) = .73, *p* = .48, and temperature x mechanism interaction: *F* (2, 154) = .71, *p* = .50).

*Hedonic Tone.* We assessed arousal using the 8-item scale (α = .82). We conducted an ANOVA with hedonic tone as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 154) = 1.52, *p* = .22, main effect of mechanism: *F* (2, 154) = .22, *p* = .81, and temperature x mechanism interaction: *F* (2, 154) = .94, *p* = .39).

*Depletion.* We averaged 5-item scale (α = .94) and conducted an ANOVA with depletion as the dependent measure, and temperature and mechanism as the predictors. None of the effects were significant (main effect of temperature: *F* (1, 154) = 1.04, *p* = .31, main effect of mechanism: *F* (2, 154) = 1.80 *p* = .17, and temperature x mechanism interaction: *F* (2, 154) = 2.29, *p* = .11).

*Alternative Process Explanations (Positive Emotional Reactions, Arousal, Depletion)*. We conducted additional moderated mediational tests (model 14; Hayes 2013).

As expected, mood did not mediate the effects of temperature on willingness-to-pay (*β* = .97; *SE* = 3.13, 95% *CI* = -1.72 to10.48) or purchase likelihood (*β* = -.004; *SE* = .02, 95% *CI* = -.04 to .04).

Moreover, moderated mediation analysis showed that, arousal (*β* = -.37; *SE* = 2.27, *CI* (95%) = -4.00 to 5.94), energetic arousal (*β* = 1.20; *SE* = 3.26, *CI* (95%) = -1.19 to 11.49), tense arousal (*β* = 1.27; *SE* = 4.14, *CI* (95%) = -4.21 to 12.50), or hedonic tone (*β* = .05; *SE* = 2.12, *CI* (95%) = -1.68 to 6.84) did not mediate the relationship between temperature and willingness-to-pay.

In addition, moderated mediation analysis showed that, arousal (*β* = .02; *SE* = .03, *CI* (95%) = -.01 to .11), energetic arousal (*β* = -.007 *SE* = .02, *CI* (95%) = -.04 to .05), tense arousal (*β* = .004; *SE* = .03, *CI* (95%) = -.03 to .08), or hedonic tone (*β* = .02; *SE* = .03, *CI* (95%) = -.01 to .10) did not mediate the relationship between temperature and purchase-likelihood.

Similarly, depletion did not mediate the effects of temperature on willingness-to-pay (*β* = -1.03; *SE* = 3.0, 95% *CI* = -5.86 to 7.18) or purchase likelihood (*β* = .02; *SE* = .03, 95% *CI* = -.02 to .1008).

In addition, we ran another moderated mediation (model 87; Hayes 2013) to test whether temperature 🡪 arousal 🡪 hostile aggression 🡪 WTP, and mechanism moderates the effect. The mediation model was not significant for willingness-to-pay (*β* = -.95; *SE* = 2.09, 95% *CI* = -6.30 to 2.36) or for purchase likelihood (*β* = -.004; *SE* = .01, 95% *CI* = -.03 to .01).

**Table 1: Aggression Means (Standard Deviations) as a Function of Temperature—Study 2A**

|  |  |  |
| --- | --- | --- |
| **Temperature** | **High (77oF)** | **Moderate (67oF)** |
| Physical Aggression | 3.11(1.55) | 2.24 (1.25) |
| Verbal Aggression | 3.17(1.56) | 2.27 (1.47) |
| Anger | 2.88 (1.53) | 2.04 (1.22) |
| Hostility | 2.95 (1.39) | 2.03 (0.98) |

**Study 2B: Detailed Analysis**

*Analysis with Gender as a Covariate.* We ran several ANCOVAs with temperature and mechanism as predictors, gender as a covariate, and several dependent measures (room temperature, willingness-to-pay, purchase likelihood, emotionality, and self-esteem).

Independent ANCOVAs with gender as a covariate did not change the pattern of our effects for any of our dependent variables. Room temperature: main effect of temperature: *F* (3, 271) = 61.59, *p* < .0001, main effect of mechanism: *F* (1, 271) = .08, *p* > .78, and temperature x mechanism interaction: *F* (3, 271) = 1.38, *p* > .25); willingness-to-pay: main effect of temperature: *F* (3, 271) = 2.27, *p* = .08, main effect of mechanism: *F* (1, 271) = 579.98, *p* < .0001, and temperature x mechanism interaction: *F* (3, 271) = 17.69 *p* < .0001; purchase likelihood: main effect of temperature: *F* (3, 271) = 2.67, *p* < .05 main effect of mechanism: *F* (1, 271) = 25.06, *p* < .0001, and temperature x mechanism interaction: *F* (3, 271) = 21.43, *p* < .0001; self-esteem: main effect of temperature: *F* (3, 271) = 1.43, *p* > .24, main effect of mechanism: *F* (1, 271) = .05, *p* > .83, and temperature x mechanism interaction: *F* (3, 271) = 1.63, *p* > .18; emotionality: main effect of temperature: *F* (3, 271) = 1.67, *p* > .17, main effect of mechanism: *F* (1, 271) = .05, *p* > .82, and temperature x mechanism interaction: *F* (3, 271) = .5, *p* > .99.

*Purchase Likelihood.* An ANOVA with purchase likelihood as the dependent measure revealed a significant main effects of temperature (*F* (3, 272) = 2.71, *p* < .05) and significant effect of mechanism (*F* (1, 272) = 25.17, *p* < .0001; purchase likelihood was higher for auctions: *M*auction = 4.59 vs. *M*negotiation = 3.47). Importantly, the temperature x mechanism interaction was significant, (*F* (3, 272) = 21.44, *p* < .0001).

In auctions, bidders in the low (*M*63F = 4.74) and high temperature conditions (*M*77F = 4.63) reported similar purchase likelihood (*p* = .79). Moreover, those in the low and high temperature conditions reported higher purchase likelihood relative to those in the moderate condition (*M*70F = 3.69) (*p* [63 vs. 70] = .019; *p* [70 vs. 77] = .036). In addition, those in the higher temperature condition (*M*82F = 5.31) reported higher purchase likelihood relative to those in the low, moderate, and high temperature conditions (*p* [63 vs. 82] = .202; *p* [70 vs. 82] = .000; *p* [77 vs. 82] = .126).

Likewise, negotiators’ purchase likelihood in the low (*M*63F = 3.09) and high temperature conditions (*M*77F = 3.17) did not differ significantly (*p* = .85). Moreover, those in the low and high temperature conditions reported lower purchase likelihood relative to those in the moderate condition (*M*70F = 5.46) (*p* [63 vs. 70] = .000; *p* [70 vs. 77] = .000). In addition, those in the higher temperature condition (*M*82F = 2.17) reported lower purchase likelihood relative to those in the low, moderate, and high temperature conditions (*p* [63 vs. 82] = .202; *p* [70 vs. 82] = .000; *p* [77 vs. 82] = .026).

*Emotionality.* We assessed emotionality using the five item scale (*α* = .78). We conducted an ANOVA with emotionality as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (3, 272) = 1.674, *p* = .17, main effect of mechanism: *F* (1, 272) = .05, *p* = .82, and temperature x mechanism interaction: *F* (3, 272) = .05, *p* = .96). As expected, emotionality did not mediate the effects of temperature on willingness-to-pay (95% *CI* = -.17 to 1.24) or purchase likelihood (95% *CI* = -.002 to .02).

*Self-esteem.* We assessed self-esteem using the 10 item scale (*α* = .91). We conducted an ANOVA with self-esteem as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (3, 272) = 1.30, *p* = .27, main effect of mechanism: *F* (1, 272) = .05, *p* = .83, and temperature x mechanism interaction: *F* (3, 272) = 1.67, *p* = .17). As expected, self-esteem did not mediate the effects of temperature on willingness-to-pay (95% *CI* = -.43 to .57) or purchase likelihood (95% *CI* = -.014 to .002).

**Table 2: Ambient Temperature Manipulation Checks Means (Standard Deviations)—Study 2B**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Temperature** | **High (82oF)** | **High (77oF)** | **Moderate (70oF)** | **Very-low (63oF)** |
| Auction | 5.41(1.18) | 4.90 (1.32) | 3.20(1.30) | 2.84 (1.56) |
| Negotiation | 5.19(1.40) | 4.70 (1.36) | 3.69(1.26) | 2.61 (1.14) |

**Study 2C: Detailed Analysis**

*Analysis with Gender as a Covariate.* We ran several ANOVAs with temperature and mechanism as predictors, gender as a covariate, and several dependent measures (room temperature, willingness-to-pay, aggression, arousal, depletion, and mood).

Independent ANOVAs with gender as a covariate did not change the pattern of results. Room temperature: main effect of temperature: *F* (1, 124) = 124.29 *p* < .001, main effect of mechanism: *F* (1, 124) = .04, *p* > .85, and temperature x mechanism interaction: *F* (1, 124) = .06, *p* > .81, willingness-to-pay: main effect of temperature: *F* (1, 124) = 8.24, *p* < .01, main effect of mechanism: *F* (1, 124) = 1.43, *p* > .24, and temperature x mechanism interaction: *F* (1, 124) = 72.67, *p* < .001, and aggression: main effect of temperature: *F* (1, 124) = 4.52, *p* < .05, main effect of mechanism: *F* (1, 124) = .59, *p* > .44, and temperature x mechanism interaction: *F* (1, 124) = .25, *p* > .62.

Similarly, independent ANOVAs with gender as a covariate also did not change the pattern of results for arousal, depletion, and mood. Results remained nonsignificant for arousal (main effect of temperature: *F* (1, 124) = .03, *p* > .86, main effect of mechanism: *F* (1, 124) = .02, *p* > .88, and temperature x mechanism interaction: *F* (1, 124) = .51, *p* > .48), depletion (main effect of temperature: *F* (1, 124) = .22, *p* > .64, main effect of mechanism: *F* (1, 124) = .001, *p* > .98, and temperature x mechanism interaction: *F* (1, 124) = .71, *p* = .40), and mood (main effect of temperature: *F* (1, 124) = 1.20, *p* > .28, main effect of mechanism: *F* (1, 124) = .91, *p* > .34 and temperature x mechanism interaction: *F* (1, 124) = 2.15, *p* > .15).

*Aggression.* We subjected the aggression measures to an exploratory factor analysis, and an eigen value > 1 criterion elicited a four-factor solution. The four-factor solution explains about 70.41% of total variance and factor loadings were as expected (e.g., each item loaded on the corresponding factor; minimum loading on predicted factor > .60, with majority much higher [>.72]). A follow-up confirmatory factor analysis also indicated a reasonably acceptable fit (goodness of fit index [GFI] = .88; comparative fit index [CFI] = .89; non-normative fit index (NNI) = .85; NFI = .83; standardized root mean square residual (SRMR) = .065).

We analyzed each of the four subscales of aggression separately (physical [3 items, *α* = .65], verbal [3 items, *α* = .78], anger [3 items, *α* = .80], and feelings of hostility [3 items, *α* = .76]). We conducted four separate ANOVAs with each measure of aggression as the dependent variable and temperature and mechanism as independent variables. The main effect of temperature emerged for hostile feelings (*F*(1, 125) = 4.83, *p* < .05), with higher temperature inducing greater hostility (*M*higher = 3.10vs. *M*moderate = 2.57). However, the main effects of temperature were not significant for physical aggression (*F*(1, 125) = 2.49, *p* = .12), verbal aggression (*F*(1, 125) = 1.45, *p* = .23), and anger (*F*(1, 125) = 1.21, *p* = .27). Furthermore, the main effect of mechanism and the temperature x mechanism interactions were not significant in any of the models (*p*’s > .3). The means are presented in table 3.

*Mediation*. We conducted a moderated mediation (model 87; Hayes 2013), where comfort and hostile aggression mediate the effects of temperature on willingness to pay, and mechanism moderates the relationship between hostile aggression and willingness to pay. The model was significant (*β* = .12; *SE* = .05, 95% *CI* = .04 to .24) and these results are reported in the main text. However, we also conducted similar moderated mediations using the other factors of aggression (instead of hostile aggression). None of these models were significant for 95% *CI* (physical = -.002 to .09; verbal = -.01 to .05; and anger = -.01 to .05) or for 90% *CI* (physical = -.0002 to .08; verbal = -.0054 to .04; and anger = -.0045 to .042).

*Positive Emotional Reactions.* We conducted an ANOVA with mood as the dependent measure and temperature and mechanism as the predictors. The effects of temperature (*F* (1, 125) = 1.17, *p* = .28), mechanism (*F* (1, 125) = .93, *p* = .34) and the temperature x mechanism interaction (*F* (1, 125) = 2.19, *p* = .14) were not significant.

*Arousal.* We assessed arousal using the 24 item scale (*α* = .69). We conducted an ANOVA with arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 125) = .03, *p* = .88, main effect of mechanism: *F* (1, 125) = .02, *p* = .90, and temperature x mechanism interaction: *F* (1, 125) = .53, *p* = .47). We also conducted additional analyses using the three subscales (energetic arousal, tense arousal, and hedonic tone). None of the main effects or interactions were significant.

*Energetic Arousal.* We assessed arousal using the 8 item scale (α = .55). We conducted an ANOVA with arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 125) = .05, *p* = .82, main effect of mechanism: *F* (1, 125) = .45, *p* = .50, and temperature x mechanism interaction: *F* (1, 125) = 2.74, *p* = .10).

*Tense Arousal.* We assessed arousal using the 24 item scale (α = .51). We conducted an ANOVA with arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 125) = .68, *p* = .41, main effect of mechanism: *F* (1, 125) = .996, *p* = .32, and temperature x mechanism interaction: *F* (1, 125) = 2.22, *p* = .14).

*Hedonic Tone.* We assessed arousal using the 24 item scale (α = .46). We conducted an ANOVA with arousal as the dependent measure and temperature and mechanism as predictors. None of the effects were significant (main effect of temperature: *F* (1, 125) = .81, *p* = .37, main effect of mechanism: *F* (1, 125) = .01, *p* = .94, and temperature x mechanism interaction: *F* (1, 125) = 1.02, *p* = .31).

*Depletion and other measures.* We assessed depletion using our 5-item scale (α = .88). We conducted an ANOVA with depletion as the dependent measure and temperature and mechanism as the predictors. Again, none of the effects were significant (main effect of temperature: *F* (1, 125) = .25, *p* = .62, main effect of mechanism: *F* (1, 125) = .00, *p* = .99, and temperature x mechanism interaction: *F* (1, 125) = .73, *p* = .40). Similarly, Additional analyses using individual or combined items from the battery of items we used (e.g., sociable, generous, caring, powerful, and crowded) also did not elicit any significant effects (*p*’s > .1).

*Alternative Process Explanations (Positive Emotional Reactions, Arousal, Depletion)*. We conducted additional moderated mediational tests (model 87; Hayes 2013).

As expected, mood did not mediate the effects of temperature on willingness-to-pay (95% *CI* = -.01 to .11). Furthermore moderated mediation analysis showed that, arousal (*β* = .02; *SE* = .03, *CI* (95%) = -.01 to .09), energetic arousal (*β* = .02; *SE* = .026, *CI* (95%) = -.005 to .090), tense arousal (*β* = -.005; *SE* = .01, *CI* (95%) = -.03 to .03), or hedonic tone (*β* = .002; *SE* = .03, *CI* (95%) = -.04 to .07) did not mediate the relationship between temperature and willingness-to-pay. Similarly, depletion did not mediate the effects of temperature on willingness-to-pay (*β* = .001; *SE* = .008, 95% *CI* = -.01 to .02).

In addition, we ran another moderated mediation (model 87; Hayes 2013) to test whether temperature 🡪 arousal 🡪 hostile aggression 🡪 WTP, and mechanism moderates the effect. The mediation model was not significant for willingness-to-pay (*β* = -.002; *SE* = .02, 95% *CI* = -.03 to .03).

**Table 3: Aggression Means (Standard Deviations) by Temperature—Study 2C**

|  |  |  |
| --- | --- | --- |
| **Temperature** | **High (82oF)** | **Moderate (67oF)** |
| Physical Aggression | 2.50(1.43) | 2.14(1.15) |
| Verbal Aggression | 3.14(1.46) | 2.84(1.35) |
| Anger | 2.21(1.33) | 1.96(1.19) |
| Hostility | 3.10(1.44) | 2.57(1.26) |

**Study 3: Detailed Analysis**

*Alternative Explanations*. Separate ANOVAs with competitiveness and motivation as dependent measures elicited a significant and a marginally significant main effect of temperature respectively (*F*(1, 68) = 6.25, *p* < .02 and *F*(1, 68) = 2.89, *p* = .094), with higher temperature eliciting higher values (*M*higher = 5.44 vs. *M*moderate = 4.60) and more motivated (*M*higher = 5.54 vs. *M*moderate = 4.81). However, neither variable mediated our effects.

The items on planning (*p* > .86), importance (*p* > .91), and control (*p* > .27) did not elicit any significant effects—either individually or combined. They also did not mediate our results. Likewise, independent ANOVAs with all the positive emotional items, including arousal (*p* > .38) and its sub dimensions (energetic arousal (*p* > .63), tense arousal (*p* > .81), and hedonic tone (*p* > .61)) were not significant. The additional items specifically adapted from Zwebner et al. (2013) to measure warmth were also not significant—interested (*p* > .17), moved (*p* > .15), captivated (*p* > .13), delighted (*p* > .40), enthusiastic (*p* > .49), appealed (*p* > .21), and amused (*p* > .87). Combining these variables together also did not lead to significance (*p* > .22).

We also combined motivation, planning, goal importance, and goal achievement importance together as a measure of goal directedness. However, this was not affected by temperature (*p* > .70) and did not mediate our results.

**Study 4: Detailed Analysis**

*Analysis with Gender as Covariate.* We ran an ANCOVA with temperature and competitiveness as predictors, gender as a covariate, and temperature perception as dependent measure. Independent ANCOVA with gender as a covariate did not change the pattern of results: main effect of temperature: *F* (1, 120) = 16.57, *p* < .0001, main effect of competitiveness: *F* (1, 120) = .69, *p* > .41, and temperature x competitiveness interaction: *F* (1, 120) = .02, *p* > .88.

We ran another ANCOVA with temperature and competitiveness as predictors, gender, spending habits, frequency of deal search and importance of best deals as a covariates, and total time spent (in minutes) as dependent measure. Independent ANCOVA with gender as a covariate did not change the pattern of results: main effect of temperature: *F* (1, 117) = 1.66, *p* > .20, main effect of competitiveness: *F* (1, 117) = 3.83, *p* = .053, and temperature x competitiveness interaction: *F* (1, 117) = 4.13, *p* < .05.

*Controlling For Other Factors.* Next we conducted an ANCOVA with total time spent (in minutes) as the dependent measure, temperature and competitiveness as predictors, and spending habits, frequency of deal search and importance of best deals as covariates revealed a significant main effect of competitiveness (*F*(1, 118) = 3.83, *p* = .052). Participants in the competitive condition spent more time finding the best possible deals than those in the control condition (*M*competitive = 10.33 vs. *M*control = 9.23 minutes). The main effect of temperature was not significant (*F* (1, 118) = 1.72, *p* = .19). The temperature x competitiveness interaction, however, was significant, (*F* (1, 118) = 4.17, *p* < .05). In the competitive condition, participants spent significantly more time searching for deals when the temperature was higher (*M*higher= 11.27 vs. *M*moderate = 9.38 minutes; *F* (1, 118) = 5.72; *p* < .02). No such difference emerged in the control condition (*M*higher = 9.02 vs. *M*moderate = 9.44 minutes; *F* (1, 118) = 0.27; *p* > .6). Together, these support out predictions.

**Studies 2A and 2C: Correlation Matrix**

*Study 2A: Item Correlation Matrix*

| **Inter-Item Correlation Matrix** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Temperature | Hostile Aggression | Physical Aggression | Verbal Aggression | Anger | Energetic Arousal | Tense Arousal | Hedonic Tone | Depletion | Mood |
| Temperature | 1.000 | .238 | .310 | .295 | .345 | -.114 | .159 | -.090 | .205 | -.279 |
| Hostile Aggression | .238 | 1.000 | .346 | .419 | .394 | -.106 | .201 | -.196 | .190 | -.202 |
| Physical Aggression | .310 | .346 | 1.000 | .638 | .613 | -.194 | .122 | -.332 | .174 | -.377 |
| Verbal Aggression | .295 | .419 | .638 | 1.000 | .642 | -.236 | .142 | -.327 | .139 | -.244 |
| Anger | .345 | .394 | .613 | .642 | 1.000 | -.171 | .158 | -.351 | .202 | -.291 |
| Energetic Arousal | -.114 | -.106 | -.194 | -.236 | -.171 | 1.000 | -.284 | .388 | -.251 | .246 |
| Tense Arousal | .159 | .201 | .122 | .142 | .158 | -.284 | 1.000 | -.332 | .340 | -.223 |
| Hedonic Tone | -.090 | -.196 | -.332 | -.327 | -.351 | .388 | -.332 | 1.000 | -.255 | .338 |
| Depletion | .205 | .190 | .174 | .139 | .202 | -.251 | .340 | -.255 | 1.000 | -.364 |
| Mood | -.279 | -.202 | -.377 | -.244 | -.291 | .246 | -.223 | .338 | -.364 | 1.000 |

*Study 2C: Item Correlation Matrix*

| **Inter-Item Correlation Matrix** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Temperature | Comfort | Hostile  Aggression | Physical  Aggression | Verbal Aggression | Anger | Energetic Arousal | Tense Arousal | Hedonic Tone | Depletion | Mood |
| Temperature | 1.000 | -.498 | .244 | .133 | .209 | .210 | -.029 | -.056 | -.018 | .061 | .063 |
| Comfort | -.498 | 1.000 | -.440 | -.211 | -.160 | -.144 | .141 | -.080 | .153 | -.039 | -.065 |
| Hostile Aggression | .244 | -.440 | 1.000 | .320 | .264 | .393 | -.260 | .194 | -.304 | .197 | -.013 |
| Physical Aggression | .133 | -.211 | .320 | 1.000 | .486 | .469 | -.157 | .061 | -.191 | .100 | .003 |
| Verbal Aggression | .209 | -.160 | .264 | .486 | 1.000 | .520 | -.107 | .035 | -.197 | .146 | .063 |
| Anger | .210 | -.144 | .393 | .469 | .520 | 1.000 | -.202 | .180 | -.292 | .248 | -.049 |
| Energetic Arousal | -.029 | .141 | -.260 | -.157 | -.107 | -.202 | 1.000 | -.246 | .595 | -.479 | .251 |
| Tense Arousal | -.056 | -.080 | .194 | .061 | .035 | .180 | -.246 | 1.000 | -.514 | .487 | -.281 |
| Hedonic Tone | -.018 | .153 | -.304 | -.191 | -.197 | -.292 | .595 | -.514 | 1.000 | -.388 | .262 |
| Depletion | .061 | -.039 | .197 | .100 | .146 | .248 | -.479 | .487 | -.388 | 1.000 | -.271 |
| Mood | .063 | -.065 | -.013 | .003 | .063 | -.049 | .251 | -.281 | .262 | -.271 | 1.000 |

**Additional References (Not Included in the Main Text)**

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