

The Interaction between Order of Elicitation and Event Controllability on the Self-Positivity Bias

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ABSTRACT

This paper studies the underlying reason behind the self-positivity bias. As events perceived to be controllable implicate self-esteem more so than less controllable ones, they are more prone to self-positivity effects. On the other hand, as less controllable events do not implicate self-esteem, only when the order-of-elicitation cues comparative (versus absolute) judgments about the self, does the self-positivity effect emerge. When information about "self" is asked first, the bias is attenuated, but when others' estimates are elicited prior to self-estimates, the bias re-emerges even for uncontrollable events. Implications for health marketing are offered.

Across a range of domains, people judge that they are less at risk of a negative event than the general population: "self-positivity" (Perloff and Fetzer 1986), and have a greater likelihood of a positive event occurring than the average person: "unrealistic optimism" (Weinstein 1980). Consumer researchers are increasingly examining self-positivity effects in people's perceptions of own risk in contexts ranging from AIDS (Raghubir and Menon 1998) and breast cancer (Luce and Kahn 1999) to Hepatitis C (Menon, Block and Ramanathan 2002) and depression (Keller, Lipkus, and Rimer 2002). As reducing the self-positivity bias can favorably affect preventative action, an important consumer welfare goal is to reduce the self-positivity bias.

Prior research has shown mixed effects regarding key moderators of the self-positivity bias: the perceived controllability of the event, and contextual cues (Helweg-Larsen and Shepperd 2001). Specifically, while the bias has been found to be strong for events perceived to be controllable, there are mixed results for events that are perceived to be uncontrollable (Harris 1996). Context effects, such as order-of-elicitation, have been found by some researchers who demonstrated a stronger self-positivity bias when estimates of an average person were elicited prior to self-estimates (Hoorens and Buunk 1993), though this effect was difficult to replicate (Otten and van der Pligt 1996).

This paper examines the interactive effects of order-of-elicitation of self- and other- estimates of risk, and perceived controllability of an event, on the self-positivity bias. As events perceived to be controllable implicate self-esteem more so than less controllable ones, they are more prone to self-positivity effects (Weinstein 1980, Lin, Lin, and Raghubir 2003). On the other hand, we argue that as less controllable events do not implicate self-esteem, only when the order-of-elicitation cues comparative (versus absolute) judgments about the self, does the self-positivity effect emerge. When information about "self" is asked first, the bias is attenuated, but when others' estimates are elicited prior to self-estimates, the bias re-emerges even for uncontrollable events. This is because the "other-first" order condition, changes the default "self as standard" to an artificial "other as standard." When the standard of comparison is an "other" person, then even though the events are not within an individual's control (and do not implicate self-esteem), the process of comparison leads to self-enhancement, and the re-emergence of the self-positivity bias. This paper reconciles conflicting findings

regarding controllability, and order-of-elicitation and suggests that the underlying cause of self-positivity is to enhance self-esteem. Implications for health marketing are offered.

THEORETICAL FRAMEWORK

Self-Positivity Bias. The tendency for self-enhancement is well documented in the domain of positive and negative events (Weinstein 1980), and, has, in fact shown to serve a functional purpose (Taylor and Brown 1988). There is ample evidence that people underestimate their own health risks as compared to the risks they attribute to others and this leads to unsafe health-related behaviors (Lin et al. 2003, Menon et al. 2002, Perloff and Fetzer 1986, Raghubir and Menon 1998).

- H1: The Self-Positivity Bias: Estimates for self will be higher than those of others for positive events and lower than those of others for negative events.

The Moderating Effect of Perceived Controllability. Weinstein (1980) conjectured that "the greater the perceived controllability of a negative event, the greater the tendency for people to believe that their own chances are less than average; the greater the perceived controllability of a positive event, the greater the tendency for people to believe that their own chances are greater than average" (p. 808). This is because people should strategically use the mechanism of believing that they are less at risk than others, if they can attribute this lower risk to their own actions. Therefore, the more controllable that an event is perceived to be the more possible it is that self-positivity beliefs will improve a person's self-esteem. Weinstein (1980) showed that in the domain of negative events, the more controllable the event, the greater the bias (Harris 1996; Helweg-Larsen and Shepperd 2001). However, this relationship was not found for positively valenced events, and the evidence linking controllability and the optimism bias for positive events remains mixed (Harris 1996). It is possible that this may be due to differences in controllability in the events used to test positive and negative events (with negative events perceived to be more controllable, due to an overall optimism bias). In this study, we examine the effect of controllability for positive and negative events and predict:

- H2: The self-positivity bias will be stronger the more controllable an event.

Order Effects. Order-of-elicitation is a well-researched contextual cue in behavioral frequency and attitude judgments. One of the routes through which order affects judgments is that responses to a prior question are used to construct a later judgment particularly when people do not have well-formed memory-based information that they may use instead (Raghubir and Johar 1999). Prior literature has found inconsistent effects of order on the self-positivity bias. Hoorens and Buunk (1993) found that the bias was stronger when others' estimates were elicited first,² while Perloff and Fetzer (1986) did not.³

²Alcoholism, AIDS, heart attack, cancer, and suicide.

³Hypertension, cancer, heart attack, alcoholism, divorce, venereal disease, and being mugged; no self-positivity effect for car accident, nervous breakdown, and diabetes.

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In an attempt to explain these inconsistent effects, Otten and van der Pligt (1996) suggested that these effects are due to whether the "self" or the "other" is used as a comparison standard. They argue that the self is a habitual reference point with a rich representation and unique features. Eliciting others' estimates prior to self-estimates leads to an "others as standard" perspective, and cues comparative processing: *i.e.*, self-estimates reflect estimates relative to others. On the other hand, eliciting self-estimates prior to others' estimates leads to the "self as standard" perspective where judgments about oneself are based on absolute judgments of risk. Consistent with this argument, they show that the self-positivity bias is greater when comparative estimates are elicited directly (*e.g.*, "How much are you at risk compared to an average person?") rather than indirectly (*e.g.*, elicitation of separate estimates of risk for an individual and an other person). They found evidence for order effects with indirect comparisons (Study 1), but not when relative estimates were elicited (Study 2). In a similar vein, Raghurir and Menon (1998) also showed that when contextual cues increased the salience of memory-based information about oneself (similar to the use of self as standard), the self-positivity bias was attenuated.

We now suggest that perceived controllability moderates the effect of order. We propose that when events are perceived to be controllable, individuals are motivated to enhance their self-esteem irrespective of the order-of-elicitation, and therefore, the self-positivity bias will be robust. When events are less controllable, however, the self-positivity bias should be contingent on the order of elicitation of self-other risk estimates. It may not be present when people are using the "self as standard" *i.e.*, when self-estimates are elicited prior to others' estimates. Self-positivity would be stronger when people make comparative judgments: when the "other person" is a standard of reference, *i.e.*, when others' estimates are elicited prior to self-estimates.

- H3: Order will not affect the self-positivity bias for controllable events, but for less controllable events, the self-positivity bias will be stronger when others' estimates are elicited prior to self-estimates.

STUDY METHOD

Study Participants. Six hundred and twenty one undergraduate students from Taiwan participated in this study. They were assigned at random to one of the eight between-subjects conditions. Due to partial non-response, the usable sample size was 606 (Males=330, females=276).

Design: We used a 4 (target person: self=S, same-sex best friend=F, average undergraduate=UG, and average person=AP) x 2 (event outcome: positive vs. negative) x 2 (degree of controllability: Low vs. high) x 2 (order: Self first, Average person first) mixed design, with the target person manipulated within-subjects, and the remaining factors manipulated between subjects. The four events were chosen on the basis of a pilot test ($n=40$) that showed that marriage and divorce were perceived to be more controllable than getting cancer and winning the lottery. In the "self first" condition, subjects rated their own risk followed by F, UG and AP (as in Raghurir and Menon, 1998). In the "average person first" condition, the order was reversed.

Study Procedure. Participants were assigned at random to one of the 8 (4 events x 2 order) conditions. After a brief introduction to the study, stating that it was related to prospects of life events among undergraduates, participants estimated the likelihood of an event occurring in the future from 0 to 100 for each of the four targets: S, F, UG and AP.

Manipulation Checks. Each individual rated the similarity of the 3 different targets from 0 to 100, with higher numbers indicating

greater similarity. Perceived controllability was measured using a 7-point rating scale (Not at all/ Very under my control). The questionnaire ended with a range of demographic and other questions, after which participants were debriefed, thanked, and dismissed.

RESULTS

Manipulation Checks-Similarity. Overall, the friend was rated as most similar to oneself ($M=50.39$), followed by the UG ($M=43.34$), with the AP rated the least similar ($M=37.43$; target effect: $F(2, 1208)=99.427, p<0.001$). The 3 (target other) x 2 (order of elicitation) repeated-measures ANOVA revealed a main effect of order ($F(1, 604)=11.517, p<0.001$), while the interaction effect was not significant ($p>0.1$). Given the significant order effect, we confirmed that the manipulation was significant in both order conditions (both p 's<0.01).

Controllability. As desired, getting divorced was perceived to be more controllable than getting cancer in the domain of negative events ($M_s=4.97$ vs. 3.91 ; $F=(1, 304)=7.88, p<0.0001$), and having a happy marriage was perceived to be more controllable than winning a lottery in the domain of positive events ($M_s=4.83$ vs. 1.9 ; $F=(1, 298)=3.00, p<0.0001$).

Overall Analysis. We used a 4 (target person) x 2 (event outcome) x 2 (degree of controllability) x 2 (order) ANOVA to test our hypotheses. Complete ANOVA results are provided in Table 1. Predicted effects are analyzed below. As per H1, there was an overall main effect of target person ($F(3, 1797)=8.04, p<0.0001$). The effect of target interacted with degree of controllability ($F(3, 1797)=23.17, p<0.001$) as predicted by H2. A significant 3-way interaction between target, valence and controllability, suggests that the self-positivity bias may be different for each of the four events ($F(3, 1797)=42.40, p<0.001$). Finally, as predicted by H3, this three-way interaction was itself contingent on the order in which judgments were elicited ($F(3, 1797)=5.37, p<0.01$). Means, by condition, are presented in Table 2, and depicted graphically in Figure 1. Below, we analyze the means to test H1-H3.

H1 predicted that estimates for negative (positive) events would be lowest (highest) for one's self, while H2 predicted that this pattern would be stronger for the more controllable events of "happy marriage" and "divorce" and weaker for the less controllable events of "cancer" and "lottery." Given the target x valence x controllability interaction, we examine the pattern of self-positivity for each of the four events.

Happy Marriage. The main effect of target was significant for estimates of a happy marriage ($F(3, 152)=66.11, p<0.001$). These were the highest for one's self ($M=71.59$), and were followed by one's best friend ($M=63.67$), UG ($M=54.32$), with the lowest estimate for AP ($M=48.74$, all means significantly different from each other at $p<0.05$).

Divorce. Similarly, estimates for divorce were the lowest for one's self ($M=24.73$), and were followed by the three other targets ($M_F=29.48, M_{AP}=39.25, M_{UG}=44.43$, all means different from each other at $p<0.05$; $F(3, 152)=33.96, p<0.001$).

Cancer. Mean estimates for contracting cancer were lowest for one's friend ($M=20.69$). These estimates were significantly lower than the other three estimates: ($M_S=25.44, M_{UG}=26.17, M_{AP}=34.78$; target: $F(3, 149)=24.02, p<0.001$). AP estimates were higher than the other three estimates, but F and UG estimates were not different from each other.

Lottery. The only event where self-positivity was not observed was the lowest perceived control event: winning a lottery. Estimates for winning a lottery were no different for one's friend ($M=14.76$), oneself ($M=15.88$) and UG ($M=18.11$), which were all

TABLE 1
Analysis of Variance Results for Study 1

Factor	Omnibus: Overall Between-Subjects F (1, 599) ¹	Individual Analysis Between-Subjects F (1, 599)			
		Self	Friend	Undergrad	Person
Valence	31.994	76.142	56.698	0.164	0.121
Control	290.986	166.2	243.144	251.409	66.021
Order	32.588	6.977	16.675	36.208	26.984
Valence x Control	141.243	179.724	120.996	29.201	32.685
Valence x Order	0.114	4.634	0.283	0.942	1.174
Control x Order	4.676	2.819	4.484	1.617	2.386
Valence x Control x Order	1.015	6.032	1.728	0.139	1.948
	Within-Subjects F (3, 1797)				
Target	8.044				
Target x Valence	46.891				
Target x Control	23.167				
Target x Order	2.245				
Target x Valence x Control	42.399				
Target x Valence x Order	4.707				
Target x Control x Order	0.312				
Target x Valence x Control x Order	5.371				

1: Effects in bold are significant at $p < .05$.

lower than the AP's estimates ($M=24.50$; $p's < 0.05$: Target: $F(3, 142)=4.99$, $p < 0.01$), reflecting self-negativity.

To summarize, as predicted by H2, for the two controllable events, we observed patterns of self-positivity (H1), but these patterns were weaker for the less controllable events. For "contracting cancer," we observed self-positivity only against unknown targets. For "winning the lottery," we found no evidence for self-positivity. The reason for this is analyzed *post hoc* below.

H3: Order Effects. H3 argued that order effects would emerge for uncontrollable event with the self-positivity effects stronger when other estimates were elicited first. This is because eliciting others' estimates changes the default "self as standard" judgment process where judgments are based on absolute estimates of risk, to an "other as standard" process, where judgments are based on relative judgments of risk. To test H3, we conducted 4 (target) x 2 (order) ANOVAs for each of the four events. Means for both order conditions across the four targets for each of the four events are provided in Table 2, and followed by ANOVA results. These results show a straight replication of self-positivity in both the order conditions for the two controllable behaviors (Target effect: $F(3, 459)=45.23$ and 65.73 for "divorce" and "happy marriage" respectively, both $p's < 0.01$, also see Figure 1). Self-estimates do not differ as a function of the order in which they are elicited ($M's=25.42$ and

24.03 for "divorce" and 72.96 and 70.28 for "happy marriage" in the self-first and other-first conditions respectively; see Figure 1). They reflect positivity versus the UG and AP (both contrasts are significant for negative and positive events in both order conditions, $p's < .05$). Importantly, order-of-elicitation does not interact with the target factor, suggesting that the strength and direction of self-positivity does not differ depending on the order in which estimates are elicited.

On the other hand, for the less controllable events, a complex pattern emerges. As predicted by H3, the main effect of target, while significant, is contingent on order (interaction $F(3, 459)=4.76$ and 4.21 for "cancer" and "winning the lottery" respectively, both $p's < 0.01$). The first estimate elicited is the same in the two order conditions, irrespective of whether it is an estimate for one's self or for the AP (cancer $M=35.27$ vs. 31.13 and Lottery $M=15.59$ vs. 15.88 for self versus AP respectively). For "cancer," self-estimates are significantly higher when they are elicited first: the "self as standard" condition ($M=35.27$) versus last when the "other" is a standard of reference ($M=16.35$). This eliminates the self-positivity bias in the self-first condition where estimates are based on absolute rather than comparative judgments of risk.

Post Hoc Analysis of Lottery. As a self-negativity effect was not predicted for the positive-uncontrollable behavior ("winning

TABLE 2
Means by Condition: Study 1

	Negative Events		Positive Events	
	High control (DIVORCE)	Low control (CANCER)	High control (HAPPY MARRIAGE)	Low control (LOTTERY)
Overall: Across Both Orders¹				
SELF	24.73 ^a	25.44 ^b	71.59 ^d	15.88 ^a
BEST FRIEND	29.48 ^b	20.69 ^a	63.67 ^c	14.76 ^a
UNDERGRAD	44.43 ^d	26.17 ^b	54.32 ^b	18.11 ^a
AVG PERSON	39.25 ^c	34.78 ^c	48.74 ^a	24.50 ^b
Order: Self First¹				
SELF	25.42 ^a	35.27 ^b	72.96 ^d	15.59 ^a
BEST FRIEND	30.56 ^b	28.42 ^a	66.26 ^c	18.59 ^a
UNDERGRAD	47.35 ^d	32.16 ^b	59.67 ^b	24.58 ^b
AVG PERSON	42.76 ^c	38.73 ^b	51.78 ^a	32.33 ^c
Correlation: Self-AP	.387	.585	.295	.019
Order: Average Person First¹				
SELF	24.03 ^a	16.35 ^b	70.28 ^c	16.20 ^{ab}
BEST FRIEND	28.38 ^a	13.54 ^a	61.18 ^b	10.54 ^a
UNDERGRAD	41.48 ^c	20.63 ^c	49.18 ^a	10.99 ^{ab}
AVG PERSON	35.69 ^b	31.13 ^d	45.82 ^a	15.88 ^b
Correlation: Self-AP	.290	.604	.301	.142
Results (F statistics) of 4 (Target) x 2 (Order) ANOVA for each event ²				
TARGET	45.23	27.59	65.73	5.33
ORDER	2.24	16.62	6.18	9.71
TARGETXORDER	1.07	4.76	1.73	4.21

¹Means that do not share a common subscript within a column, within a group, are significantly different from each other at $p < .05$ using directional tests.

²Numbers in bold are significant at $p < .05$.

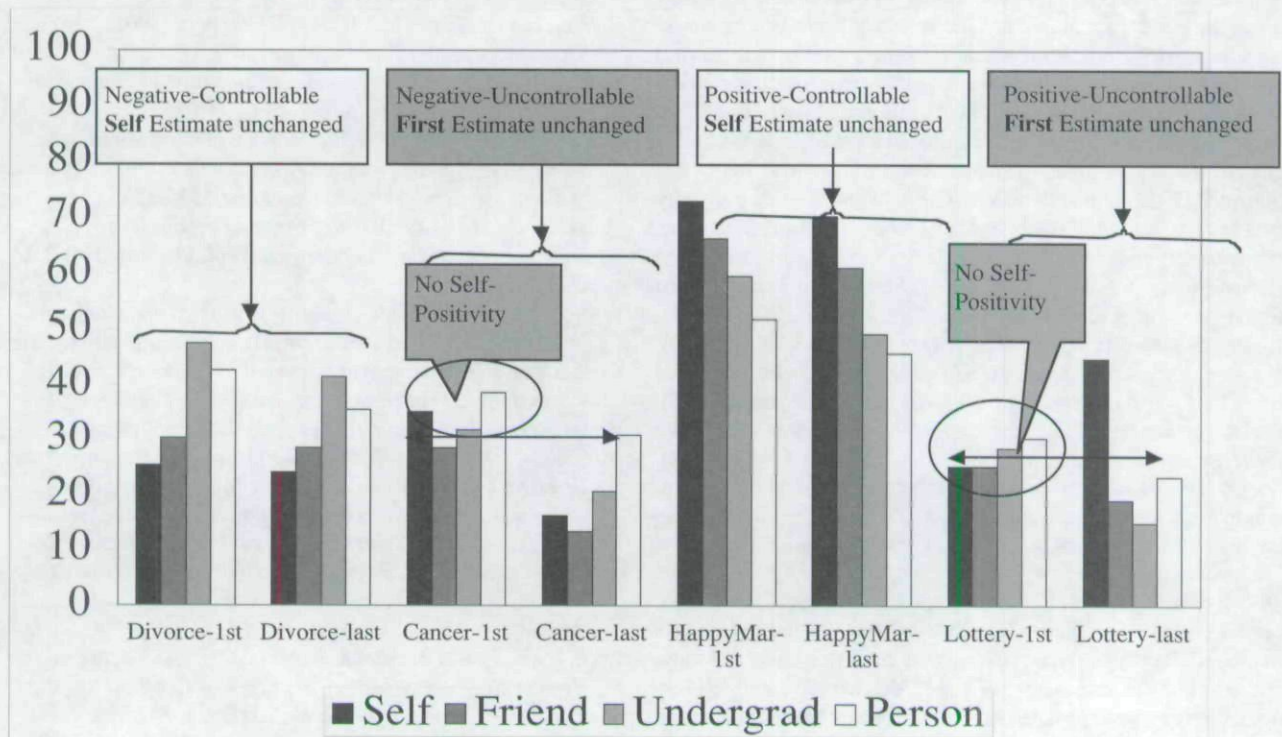
the lottery”), we examined whether this effect was contingent on an individual’s absolute level of self-estimate. To assess this possibility, we did a median split of people’s self-estimates for winning the lottery. Half ($n=73$) of the respondents reported a 0 likelihood of winning the lottery, whereas the other half ($n=72$), reported a mean self-likelihood=31.99. A 4 (target) x 2 (order) x 2 (self-estimate: low/ high) ANOVA revealed a three-way interaction ($F(3, 423)=3.08, p < .05$). Those individuals who estimated their own likelihood of winning the lottery as 0, showed self-negativity effects irrespective of whether the self-estimates were elicited first

($M_s=7.84, 18.34, \text{ and } 35.21$ for F, UG, and AP respectively, all means significantly different from each other at $p < .05$) or whether self-estimates were elicited last ($M_s=5.64, 8.70, \text{ and } 11.66$ for F, UG, and AP respectively, with estimates for UG directionally different from F and AP, but other means different at $p < .05$).

On the other hand, those who estimated that they had a non-zero likelihood of winning the lottery, were prone to self-positivity effects when other estimates were asked first: the “other as standard” condition cuing comparative judgments ($M_s=44.72, 19.18, 15.00, \text{ and } 23.32$ for S, F, UG, and AP respectively, with self

FIGURE 1

Study 1 Results: Order of elicitation (Self First or Self Last) affects self judgments only for less controllable events (Lottery Data is shown for those who estimated non-zero probability of winning)



estimates higher than those of the remaining three targets at $p < .05$). However, when self-estimates were elicited first ("self as standard"), estimates did not differ across the four targets ($M_s = 25.21, 25.22, 28.43, \text{ and } 30.55$ for S, F, UG, and AP respectively). Note how the self-positivity pattern is stronger when other estimates are elicited first ("other as standard"), similar to the results for cancer (see Figure 1, for the means for those who estimated a non-zero probability of winning the lottery).

DISCUSSION

To summarize, results replicate the self-positivity bias in the domain of controllable events for both positive and negative events. Manipulations of the order in which estimates were elicited showed that in the high-controllability events, the bias was robust to order-of-elicitation. However, when events are less controllable, then respondents are less likely to show self-positivity, unless their frame of reference is "other focused," leading to comparative judgments.

Theoretical Contributions. A primary contribution of this paper is to demonstrate that under conditions where individuals are motivated to maintain or enhance their self-esteem (controllable events), self-estimates of likelihood are obdurate for both negative and positive events. A parsimonious explanation for the pattern of results is that self-positivity is a strategic device that people use to maintain or enhance their self-esteem.

The relationship between perceived controllability and self-positivity bias may have important theoretical and practical implication (Harris 1996). Self-positivity due to perceived controllability may be psychologically advantageous, promoting positive mental health (Taylor and Brown 1988). On the other hand, exaggerated control perceptions, may themselves have negative consequences

(Skinner 1995), such as complacency, rather than effective goal-relevant behavior (Weinstein 1989). Either way, the propensity to perceive events to be controllable may make it one of the more pervasive causes of optimistic bias. This suggests that the bias may be related to the illusion of control and over-confidence, an area we offer for future research. Practically, it may be difficult to successfully challenge optimistic expectations rooted in powerfully held individual's control beliefs, even when it is desirable to do so (Harris 1996).

Are Self or Other Estimates more tensile? Prior literature has shown that self-perceptions of risk are more amenable to change than perceptions of others' risk as a function of contextual cues, such as the accessibility of AIDS-related behaviors (Raghubir and Menon 1998), and the number and type of Hepatitis C behaviors presented in an advertisement (Menon et al. 2002). Our study found that for less controllable events, self-judgments, when elicited first were similar to other-judgments when those were elicited first and, were accordingly, different from self-estimates when those were elicited last. Our results show that self-estimates were more tensile than others' estimates. Identifying the conditions under which self-estimates are robust, and others-estimates are tensile are offered as an area for future research.

Cross-Cultural Issues. Cross-cultural variations in self-positivity have been noted. This paper replicated the self-positivity bias in a country with a "collectivist" orientation: Taiwan (Hofstede 1990), suggesting that even if it is lower for people from a collectivist orientation (relative to an individualistic orientation), it remains significant. Heine and Lehman (1995) showed that the belief that positive events are more likely to happen to one's self (relative to one's peer) was significantly reduced for Japanese relative to Canadian individuals. Similarly, Chang (1996) found that across

multiple measures, Chinese individuals were more pessimistic than were their American peers. However, Sedikides, Gaertner, and Toguchi (2003) have recently suggested that self-positivity may be a universal phenomenon, but the domain in which it is seen may differ for those from individualistic versus collectivistic cultures.

Similarity Bias. Prior literature shows that people have a tendency to project information about themselves onto others because of the operation of the false consensus bias (Hoch 1988; Perloff and Brickman 1982). This leads them to believe that others behave in ways similar to themselves (Menon, Raghurir, and Schwarz 1995). Although previous research on the self-positivity bias has found a similarity bias, the findings of self-positivity bias between self and close friend (or parent and siblings) are mixed (Helweg-Larsen and Shepperd 2001). Perloff and Fetzer (1986) found subjects perceived a specific target (their closest friend, sibling, or same-sex parent) as equally invulnerable as themselves. However, others have found the self-positivity bias with respect to one's best friend (Menon et al. 2002, Raghurir and Menon 1998). Perloff and Fetzer (1986) argue that when predictions were being made for vague targets (*i.e.*, the average undergraduate student), respondents chose a person who fit their stereotype of someone to whom the given event typically happens. This suggests that the bias could be stronger when there is an unknown (versus known) target used as a comparison other.

We found that while, on the whole, judgments were more positive for an other person the more similar the other person was to oneself, there were some divergences from this linear ordering. For example, the self-positivity bias in the divorce condition was not entirely inversely related to the similarity of another person to oneself. A possible explanation for our results was that our study was conducted with a sample from a collectivist country (Taiwan) where there exist strong cultural inhibitions against expressing a negative thought against a known and similar other person in one's peer group (Heine and Lehman 1995). However, alternative explanations involving cognitive factors (such as the presence of memory-based information about the best friend) are possible. Delineating the targets relative to which self-positivity will occur is an interesting area for future research.

Implications for Consumer Welfare. The self-positivity bias occurs for both positive and negative events (Weinstein 1980). If the self-positivity bias operates for low chance outcomes, such as winning a lottery, such people may consider themselves as "the lucky ones," overestimate the likelihood of pleasant outcomes and be more likely to over-spend on these products. Further, to the extent people have exaggerated views of their own invulnerability or positivity, they may be less likely to effectively deal with the occurrence of negative events, and the non-occurrence of positive ones. Self-positivity biases in personal risk perceptions are important because they may hinder efforts to promote risk-reducing behaviors (Raghurir and Menon, 1998, Menon et al. 2002). Our results suggest that making the self-as-standard along with highlighting the low controllability of an event can help attenuate the self-positivity bias.

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