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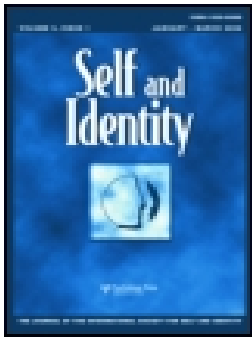
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## Do consumer choices augment narcissism? The role of self-referent processing

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### ABSTRACT

Drawing on the choice and self-referent processing literatures, we hypothesized that the act of making consumer choices will augment narcissism, because it directs attention to the self (i.e., increases self-referencing). Results of three experiments provided support for the proposed path from choice to narcissism via self-referencing (indirect effect), but not for the path from choice to narcissism (total effect). This pattern, first reported in Experiment 1, held only for agentic choices (e.g., products for personal use), which prompt thoughts about the self, and not for communal choices (e.g., charitable organizations), which prompt thoughts about others (Experiment 2). Also, this pattern generalized across agentic choices of public and private products (Experiment 3). We consider theoretical and practical implications.

### ARTICLE HISTORY

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### KEYWORDS

Choice; consumption; identity; narcissism; self-referencing

Consumer choices are ubiquitous (Kahn et al., 2014; Mick, Broniarczyk, & Haidt, 2004). On any given day, individuals face choices between consumer goods and services, such as yoga or gym, organic or conventional, tea or coffee, car or public transport. Although the act of making consumer choices confers psychological benefits, such as personal control restoration and mood regulation (“retail therapy;” Atalay & Meloy, 2011; Rick, Pereira, & Burson, 2014), this act may also promote attention to individual needs and desires at the expense of interpersonal or societal concerns. Indeed, making choices can increase self-referent processing, because choice-making involves extensive consideration of past and imagined consumption occasions that may bring the self to the fore (Sood & Forehand, 2005). Building on this evidence, we examined the possibility that making consumer choices elevates grandiose narcissism by increasing self-referent processing.

### *Consumer choices and grandiose narcissism*

Grandiose narcissism refers to a self-absorbed, self-aggrandizing, dominant, and manipulative orientation (Morf, Horvath, & Torchetti, 2011; Thomaes, Brummelman, & Sedikides, 2018).

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It is characterized by a strong sense of specialness and entitlement, fantasies of success and power, vanity and lack of empathy, as well as proclivity to exploitation and aggression (Bushman & Baumeister, 1998; Hepper, Hart, & Sedikides, 2014; Vazire, Naumann, Rentfrow, & Gosling, 2008). Starting in the 1970s (Twenge, Campbell, & Gentile, 2012), narcissism has risen over the last decades in the US (and not only; Cai, Kwan, & Sedikides, 2012), culminating in what has been termed a “narcissism epidemic” (Twenge & Campbell, 2009; Twenge & Foster, 2010; for an opposing view and a response, see Wetzell et al., 2017; and Campbell, Twenge, Konrath, Cooper, & Foster, 2018; respectively). This trend has been linked to a broader culture of self-love and self-admiration characterizing contemporary societies (Campbell, Miller, & Buffardi, 2010; Sedikides, Gaertner, & Cai, 2015), which is reflected in the positive associations between narcissism and use of social networking websites (McCain & Campbell, 2016) or posting of selfies (Fox & Rooney, 2015; Sorokowski et al., 2015).

Recently, narcissism has attracted empirical attention in consumer contexts. Most of the literature has focused on narcissism as a trait, examining how narcissists make consumer choices. Their consumption patterns indicate a preference for products with a symbolic (high prestige) rather than a utilitarian (pragmatic) value (Cisek et al., 2014; Sedikides, Gregg, Cisek, & Hart, 2007), and a proclivity to self-enhance through materialistic possessions (Lee, Gregg, & Park, 2013; Sedikides, Hart, & Cisek, *in press*). Narcissists also engage in word-of-mouth communication in order to express themselves and attract attention to themselves (Saenger, Thomas, & Johnson, 2013). Moreover, narcissists are more motivated by the pursuit of extrinsic goals, such as material wealth, fame, or image, rather than intrinsic goals, such as health, relationships, or personal growth (Abeyta, Routledge, & Sedikides, 2017; Hart et al., 2011). Other research has highlighted the detrimental effects of consumer entitlement, a concept related to narcissism (Boyd & Helms, 2005; Butori, 2010), on customer satisfaction (Martin, Jin, & Trang, 2016; Zboja, Laird, & Bouchet, 2016). The current article focuses on narcissism as a state, asking how consumer choices influence it.

Whereas a trait refers to an individual's proclivity toward (or away from) a set of cognitions, emotions, or actions, a state is the actual and short-lived set of cognitions, emotions, or actions in a particular situation (Fleeson, 2001; Nezlek, 2007; Sedikides, Slabu, Lenton, & Thomaes, 2017). Narcissism can be conceptualized as a state. Several theoretical models have proposed, and evidence has indicated, that narcissism is a regulatory system that varies as a function of situational contingencies such as rewards or opportunities for self-enhancement (Campbell & Foster, 2007; Morf & Rhodewalt, 2001; Roberts, Woodman, & Sedikides, 2017). Also, levels of narcissism fluctuate depending on interdependence construal primes (Giacomin & Jordan, 2014), felt empathy (Giacomin & Jordan, 2016), use of social media (Horton, Reid, Barber, Miracle, & Green, 2014), and experiencing positive outcomes – agentic (e.g., exercising power over another person) or communal (e.g., helping another person; Giacomin & Jordan, 2016).

### ***Consumer choices, self-referencing, and state narcissism***

A central tenet of our research is that the act of making consumer choices can involve reference to the self. Along with inspecting, comparing, and selecting among external alternatives, choice may also require contrasting alternatives with internal standards until an ideal match to the self is achieved. Stated otherwise, the choice process is not only outward-directed, but also inward-directed. Several empirical lines are consistent with the putative link between choice and self-referencing. For example, choosing among alternatives

yields more self-referent processing than judging the same alternatives, because choosing involves extensive consideration of past and future consumption occasions that implicate the self (Sood & Forehand, 2005). Additionally, according to research inspired by self-perception and self-signaling theories, choice serves as a signal manifesting not only to others but also to the self what one likes and what kind of a person one is (Bem, 1967; Bodner & Prelec, 2003; Quattrone & Tversky, 1984). Finally, research on associative self-anchoring has shown that, when individuals make choices, implicit self-evaluations are transferred from the self to the chosen options, so that choosers end up liking what they select, because they see themselves reflected in their choices (Gawronski, Bodenhausen, & Becker, 2007; Ye & Gawronski, 2016; see also Gregg, Mahadevan, & Sedikides, 2017).

Another literature implies a link between self-referencing and narcissism (Konrath, Bushman, & Grove, 2009), although it does not clarify the direction of this link. For example, the prominence of CEO's photographs in companies' annual reports is positively associated with CEO's narcissism levels (Chatterjee & Hambrick, 2007; Sedikides & Campbell, 2017). Also, some studies have reported a positive relation between first-pronoun use and narcissism (Chatterjee & Hambrick, 2007; Fast & Funder, 2010; Raskin & Shaw, 1988; but see Carey et al., 2015). Finally, other studies suggest that narcissists have lower self-control, which implies that they are unlikely to delay gratification, that they focus more on their immediate desires, and that they are impulsive or unconstrained by social norms (Miller et al., 2009; Rose, 2007; Vazire & Funder, 2006).

The above two literature streams point to associations between choice and self-referencing, and between self-referencing and narcissism. We put it all together in the current research. Specifically, we asked whether the act of choosing conduces to a temporary rise in narcissism by triggering self-referent processing. We note that narcissism, which implies feeling superior to others, is distinct from self-esteem, which implies feeling worthy (Brummelman, Gürel, Thomaes, & Sedikides, *in press*; Brummelman, Thomaes, & Sedikides, 2016). Hence, we further argue that consumer choices elevate narcissism via self-referencing, but not via self-esteem.

However, not all consumer choices are equal in involving thoughts about the self. For example, charitable giving is a type of consumer choice that may trigger more thoughts about others than about the self (Bagozzi & Moore, 1994; Dickert, Sagara, & Slovic, 2011). Prior research has also shown that grandiose narcissists value agency more than communion (Campbell, Rudich, & Sedikides, 2002; Miller, Price, Gentile, Lynam, & Campbell, 2012; Miller et al., 2011). This means that agentic choices lend themselves more to the satisfaction of grandiose narcissism motives than communal choices.<sup>1</sup> According to our theorizing, choice augments narcissism only insofar as it induces self-referent processing. Thus, we postulated that narcissism is more likely to be augmented via self-referencing by choices in agentic domains (e.g., consumer products), which involve more thinking about the self relative to others, rather than in communal domains (e.g., charity causes), which involve more thinking about others relative to the self. Choice domain (agentic vs. communal), then, served as a moderator. Taken together, we reasoned that consumer choices would elevate narcissism via self-referencing only for agentic choices and not for communal ones.

## Overview

We conducted a pilot study to validate the dependent measure of state narcissism, and we carried out three experiments to evaluate specific hypotheses. In particular, in Experiment

1, we tested the hypotheses that making consumer choices elevates narcissism, and that this effect occurs via increased self-referent processing. In Experiment 2, we tested the boundaries of this mediation effect. We hypothesized that consumer choices augment narcissism via increased self-referencing when they are agentic (e.g., for one's own use), but not when they are communal (e.g., for charity). In Experiments 1–2, we were concerned with choices of products consumed in public. In Experiment 3, we wondered whether the effect generalizes to products consumed in private. We also wondered whether the effect is localized to product-specific self-referencing (i.e., thinking about the self in relation to a product), assessed in Experiments 1–2, vs. general self-referencing (i.e., thinking about the self), assessed in Experiment 3.

## Pilot study

In the Pilot Study, we aimed to validate a brief measure of state narcissism for use as a dependent variable in the experiments. We adapted 14 items from the 40-item Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) to reflect a state. We tested the resulting scale, labeled SNPI-14, for convergent validity against an established state measure of narcissism, the SNPI-16 (Ames, Rose, & Anderson, 2006; Giacomin & Jordan, 2016).

## Method

### Participants

Participants were 101 US residents (56 men, 45 women) recruited via MTurk. Their ages ranged from 19 to 75 years ( $M = 35.94$ ,  $SD = 11.84$ ). A power analysis indicated a minimum required sample size of 85 anticipating a correlation of medium size ( $r = .30$ ), power level of .80, and alpha level of .05, and a required sample size of 87 anticipating a paired  $t$ -test mean difference of small size ( $d = .30$ ), power level of .80, and alpha level of .05. We opted for a small effect size in the paired  $t$ -test to reflect a relatively conservative test of the null hypothesis (the two scale means are not significantly different from each other).

### Procedure

In developing the SNPI-14, we selected two items from each subscale of the NPI attempting to limit the length of the scale while maintaining its breadth. We selected items that loaded the highest on the factors, but occasionally opted for items with weaker loadings, that is, when it was impossible to adjust such items to reflect state rather than trait (items of the “when ... then...” variety). However, all selected items were among the top three with highest loading on the relevant factor of the original scale, and all had a minimum loading of .5.

The SNPI-14 consisted of 14 items, two from each of seven subscales (authority, superiority, exhibitionism, entitlement, vanity, exploitativeness, self-sufficiency), and it featured a forced-choice format as the original NPI (Appendix 1). Sample SNPI-14 items are: (1) “I expect a great deal from other people, right now” (narcissistic statement) vs. “Right now, I like to do things for other people” (non-narcissistic statement); and (2) “Right now, I think I am an extraordinary person” (narcissistic statement) vs. “I think I am much like everybody else, right now” (non-narcissistic statement). Participants completed the two brief narcissism scales, the SNPI-14 and the SNPI-16, in random order. Reliabilities for both scales were adequate ( $\alpha = .77$  for SNPI-14;  $\alpha = .86$  for SNPI-16).

## Results and discussion

The two scales were positively correlated,  $r = .86, p < .001$ . A paired samples  $t$ -test showed no difference in means between the SNPI-14 ( $M = 4.83, SD = 3.22$ ) and the SNPI-16 ( $M = 4.58, SD = 4.07$ ),  $t(100) = -1.19, p = .239, d = .07, 95\% CI = [-.662, .167]$ . Thus, the SNPI-14 has convergent validity with an established state narcissism scale, the SNPI-16. Critically, unlike the SNPI-16, the SNPI-14 represents all seven subscales of the original NPI with an even number of items. Moreover, the overlapping items in the two scales are only five. Taken together, the results of the Pilot Study support the use of the SNPI-14 as a new measure of state narcissism, which has adequate reliability, features convergent validity, and covers equally all facets of narcissism.

## Experiment 1

In Experiment 1, we tested the hypothesis that making consumer choices augments narcissism by increasing (product-specific) self-referencing.

### Method

#### Participants and design

Participants were 150 US residents (81 men, 69 women) recruited through MTurk. They ranged in age from 18 to 74 years ( $M = 33.75, SD = 11.71$ ). A power analysis for mediation tests using MedPower (Kenny, 2017; February) indicated a minimum required sample size of 113 based on an indirect effect of medium size (an  $ab$  path of .09), power level of .80, and alpha level of .05. In addition, empirical estimates to detect a medium to small mediation effect (an  $a$  path of .26 and a  $b$  path of .26, power level of .80, and alpha level of .05) would require a sample size of 148 using bias-corrected bootstrap procedures (Fritz & MacKinnon, 2007). Therefore, a sample size of 150 would suffice to test our hypothesis. The design involved a single factor (choice: present vs. absent) manipulated on a between-subjects basis.

#### Procedure

We randomly assigned participants to conditions (choice present, choice absent). In both conditions, we presented participants with nine choice sets, each comprising images of three consumer products of the same category (backpacks, jackets, jeans, mugs, shoes, sofas, sunglasses, t-shirts, watches). In the choice-present condition, we instructed participants to choose any option that they liked, irrespective of budget constraints. In the choice-absent condition, we instructed them to choose the option that was in grayscale (a randomly determined option was in grayscale in each choice set). In both conditions, the “next” button always appeared after 5 s to ensure that participants took the time to inspect the options. Participants then rated the options in terms of attractiveness and closeness to their own taste ( $\alpha = .77$ ). As a manipulation check, they indicated their agreement (1 = *strongly disagree*, 7 = *strongly agree*) with six items measuring self-agency ( $\alpha = .88$ ), adapted from Hadi and Block (2014). Sample items are: “I was able to choose products,” “I felt obligated to select the products I selected” (reverse-scored).

**Table 1.** Means (standard deviations) for state narcissism, self-referencing, and state self-esteem in Experiments 1, 2, and 3.

	Experiment 1		Experiment 2				Experiment 3											
	Choice absent (Public only)	Choice present (Agentic only)	Choice absent (Public only)		Communal	Agentic	Choice present (Public only)		Communal	Agentic	Choice absent (Agentic only)		Public	Private	Choice present (Agentic only)		Public	Private
			Communal	Agentic			Public	Agentic			Public	Private			Public	Private		
State narcissism	4.44 (2.92)	4.38 (3.41)	4.25 (2.93)	4.93 (2.66)	4.15 (3.11)	4.57 (3.40)	4.98 (2.93)	4.70 (2.08)	5.31 (2.83)	4.98 (2.93)	4.70 (2.08)	5.31 (2.83)	5.31 (2.83)	4.70 (2.08)	5.40 (2.51)	5.31 (2.83)	4.70 (2.08)	5.40 (2.51)
Product-specific self-referencing	3.20 (1.47)	4.84 (1.17)	3.57 (1.60)	3.67 (1.79)	4.08 (1.53)	4.98 (1.30)	3.16 (1.77)	2.80 (1.70)	5.07 (1.50)	3.16 (1.77)	2.80 (1.70)	5.07 (1.50)	5.07 (1.50)	2.80 (1.70)	4.67 (1.06)	5.07 (1.50)	2.80 (1.70)	4.67 (1.06)
General self-referencing	–	–	–	–	–	–	3.20 (1.93)	2.67 (1.65)	5.48 (1.46)	3.20 (1.93)	2.67 (1.65)	5.48 (1.46)	5.48 (1.46)	2.67 (1.65)	5.28 (1.52)	5.48 (1.46)	2.67 (1.65)	5.28 (1.52)
State self-esteem	4.61 (1.52)	5.01 (1.42)	4.49 (1.62)	4.86 (1.41)	4.38 (1.73)	4.86 (1.40)	4.65 (1.35)	4.83 (1.38)	4.98 (1.37)	4.65 (1.35)	4.83 (1.38)	4.98 (1.37)	4.98 (1.37)	4.83 (1.38)	4.90 (1.36)	4.98 (1.37)	4.83 (1.38)	4.90 (1.36)



Next, participants responded to the state narcissism measure, the SNPI-14 ( $\alpha = .78$ ). Subsequently, they completed a 2-item state self-esteem measure: “Right now, I feel good about myself;” “Right now, I have high self-esteem” ( $\alpha = .94$ ). The first item is part of the State Self-Esteem Scale (Heatherton & Polivy, 1991), the second one is the Single-Item Self-Esteem Scale (Robins, Hendin, & Trzesniewski, 2001). Then, a self-referencing measure (adapted from Sood & Forehand, 2005) followed, which consisted of three items: “To what extent did you visualize yourself making use of the products you saw?;” “To what extent did you consider personal experiences that included the products you saw?;” “To what extent did you visualize yourself in social situations involving the products you saw?” ( $\alpha = .81$ ). Finally, participants indicated how easy or difficult they found the task with the product pictures (1 = *easy*, 7 = *difficult*), and answered demographic questions (sex, age, ethnicity).

## Results

### Manipulation check

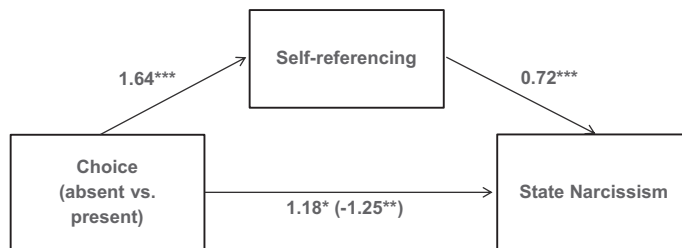
As intended, the choice-present condition induced a higher sense of self-agency ( $M = 5.85$ ,  $SD = 1.07$ ) than the choice-absent condition ( $M = 3.60$ ,  $SD = 1.25$ ),  $t(148) = -11.92$ ,  $p < .001$ ,  $d = 1.93$ , 95% CI =  $[-2.623, -1.877]$ . The manipulation was effective.

### Options ratings

The products used as experimental stimuli were rated positively ( $M = 4.85$ ,  $SD = 1.18$ ) and significantly higher from the scale midpoint,  $t(149) = 8.88$ ,  $p < .001$ ,  $d = 1.46$ , 95% CI =  $[.664, 1.043]$ . The products were rated equivalently in the two conditions,  $t(148) = -0.94$ ,  $p = .351$ ,  $d = -0.15$ , 95% CI =  $[-.561, .200]$ .

### Main findings

The choice-present condition ( $M = 4.84$ ,  $SD = 1.17$ ) instigated more self-referent processing than the choice-absent condition ( $M = 3.20$ ,  $SD = 1.47$ ),  $t(148) = -7.57$ ,  $p < .001$ ,  $d = 1.23$ , 95% CI =  $[-2.071, -1.202]$ . Unexpectedly, there was no total effect<sup>2</sup> of choice on state narcissism,  $t(148) = 0.13$ ,  $p = .897$ ,  $d = 0.02$ , 95% CI =  $[-.965, 1.100]$  (Table 1). There was only a marginal total effect of choice on state self-esteem, indicating that the choice-present condition ( $M = 5.01$ ,  $SD = 1.42$ ) yielded higher state self-esteem than the choice-absent condition ( $M = 4.61$ ,  $SD = 1.52$ ),  $t(148) = -1.66$ ,  $p = .098$ ,  $d = 0.27$ , 95% CI =  $[-.873, .075]$  (Table 1).



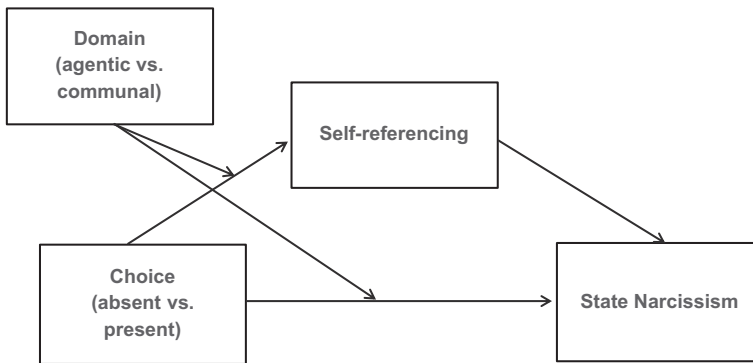
**Figure 1.** Indirect effect of choice (0 = *absent*; 1 = *present*) on state narcissism through self-referencing in Experiment 1 (the direct effect, controlling for self-referencing, appears in parenthesis).

Note: Unstandardized regression coefficients are provided along the paths. \*No zero between LLCI and ULCI. \*\* $p < .05$ . \*\*\* $p < .001$ .

**Table 2.** Correlations among all variables in Experiment 1.

	1	2	3	4
1. State narcissism (SNPI-14)	–	–	–	–
2. Self-referencing	.25**	–	–	–
3. State self-esteem	.42***	.26**	–	–
4. Options attractiveness	.08	.42***	.34***	–
5. Task difficulty	.24**	.02	.00	–.11

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

**Figure 2.** Conceptual graph of moderated mediation model in Experiment 2.

However, several researchers have advocated abandoning the requirement of a significant total effect before examining indirect effects (Hayes, 2009; Rucker, Preacher, Tormala, & Petty, 2011; Zhao, Lynch, & Chen, 2010). We proceeded, then, with the mediation hypothesis that choice elevates state narcissism by increasing self-referencing, even though the total effect of choice on narcissism was not significant. To this end, we used the PROCESS macro for SPSS (Model 4; Hayes, 2013) with 95% bias-corrected bootstrap confidence interval based on 5,000 bootstrap samples. We entered choice (dummy coded: 0 = *absent*, 1 = *present*) as the independent variable ( $X$ ), state narcissism as the dependent variable ( $Y$ ), and product-specific self-referencing as the putative mediator ( $M$ ). We obtained a mean indirect effect of  $B = 1.18$ ,  $SE = 0.37$ , 95% CI = [.512, 1.956], suggesting that choice elevates narcissism via self-referencing (Figure 1). Critically, choice did not exert an indirect effect on narcissism via self-esteem,  $B = 0.37$ ,  $SE = 0.24$ , 95% CI = [–.049, .882], even though self-esteem was marginally higher in the choice-present than in the choice-absent condition. Therefore, choice led to narcissism by increasing self-referencing, but not self-esteem.<sup>3</sup> Although the total effect of choice on narcissism was not significant,  $B = -0.07$ ,  $SE = 0.52$ ,  $p = .897$ , 95% CI = [–1.100, .965], the direct effect of choice on narcissism became significant after controlling for self-referencing in the model,  $B = -1.25$ ,  $SE = 0.59$ ,  $p = .036$ , 95% CI = [–2.411, –.083]. The finding that the relation between choice and narcissism became stronger following inclusion of self-referencing may flag self-referencing as a suppressor variable, which, if such, would cloak the effect of choice on narcissism by its omission. Robustness checks further showed that the indirect effect of choice on narcissism remained significant after controlling for option ratings,  $B = 1.21$ ,  $SE = 0.36$ , 95% CI = [.581, 1.998], and task difficulty,  $B = 1.11$ ,  $SE = 0.38$ , 95% CI = [.445, 1.947]. We present correlations among all variables in Table 2.

## Discussion

The results of Experiment 1 revealed no total effect of consumer choice on narcissism. Making consumer choices per se did not render participants more or less narcissistic. However, the results were consistent with our theorizing that making consumer choices augments narcissism by increasing product-specific self-referencing. This finding converges with prior work indicating that choice induces self-referencing (Sood & Forehand, 2005), and extends that work in illustrating that, by doing so, choice contributes to rises in narcissism.

The obtained indirect effect is informative. Indirect effects can furnish insights into paths through which an independent variable exerts its influence on a dependent variable (Rucker et al., 2011). In our case, although choice had no total effect on narcissism, taking self-referencing into consideration revealed a path via which choice promotes narcissism. Furthermore, self-referencing may qualify as a suppressor variable. Suppressor variables, albeit underrepresented in research designs, can provide the “opportunity to acquire a deeper understanding of the relationships among variables” (Rucker et al., 2011, p. 368). Hence, taking into account self-referencing may clarify the association between consumer choice and narcissism, even though it appears as if the two are unrelated. We return to the issue in General Discussion. In the subsequent experiments, we focused on this indirect effect attempting to improve our understanding of it by testing its boundary conditions.

## Experiment 2

In Experiment 2, we examined whether choice domain (agentic vs. communal) moderates the indirect effect of choice on narcissism via self-referencing. (See Figure 2 for a schematic depiction of the model.) Given that the dependent measure reflects agentic and not communal narcissism, we hypothesized that the pattern obtained in Experiment 1 would hold only for agentic choices (consumer products) and not for communal choices (charity causes).

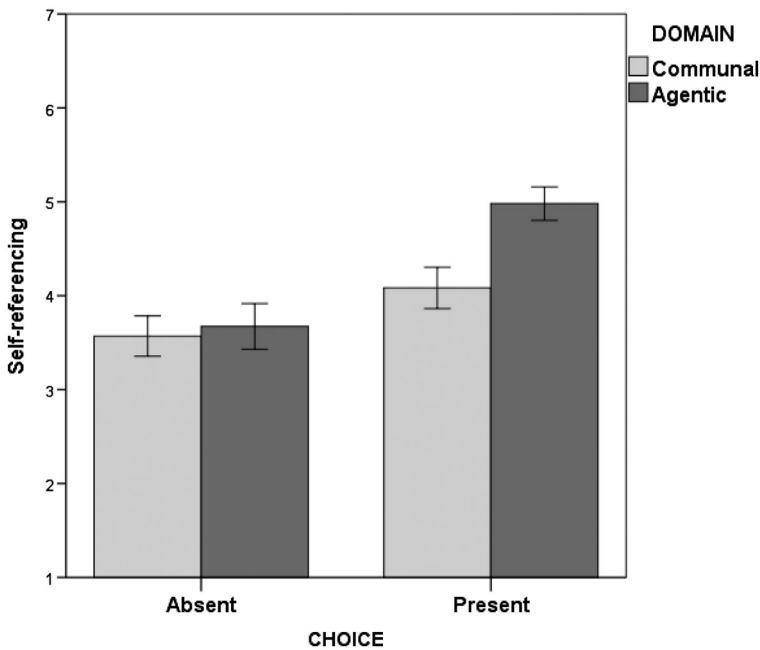
## Method

### Participants and design

Participants were 240 US residents recruited from MTurk. We excluded 30 participants who had taken part in the previous experiment. The final sample comprised 210 participants (125 men, 85 women) ranging in age from 18 to 72 years ( $M = 31.50$ ,  $SD = 12.36$ ). Given that – to the best of our knowledge – no application exists for the sample size estimation of conditional indirect effects, we opted for a sample size approximately double that of Experiment 1, as the current experiment featured the addition of an independent variable. Specifically, the experiment used a 2 (choice: present vs. absent)  $\times$  2 (domain: agentic vs. communal) between-subjects design.

### Procedure

We modeled closely the procedure after that of Experiment 1. The manipulation of choice was identical to Experiment 1's. We manipulated domain by asking participants to make either agentic or communal choices. For the agentic domain, we used the same choice sets as in Experiment 1 (consumer goods). For the communal domain, we used an equal number of choice sets (nine) with the logos of three charity options each (animals, cancer,



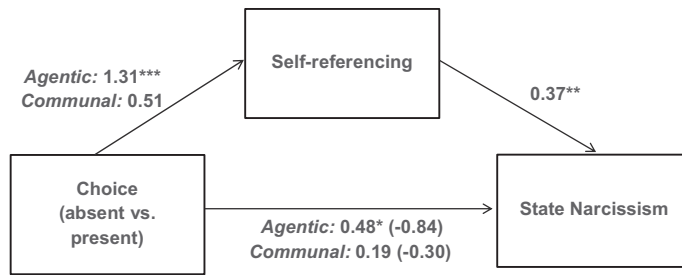
**Figure 3.** Mean self-referencing as a function of choice (absent vs. present) and domain (communal vs. agentic) in Experiment 2. Error bars represent standard errors of the mean.

environment, homeless, human rights, humanitarian aid, hunger, children, poverty). For example, participants in the communal domain indicated either to which organization (American Red Cross, Doctors without Borders, UNICEF) they would donate money (choice present) or which organization's logo was in grayscale (choice absent). Two manipulation checks followed, one for choice (the self-agency measure of Experiment 1;  $\alpha = .91$ ) and another for domain ("The options depicted in the pictures referred to one's own needs," "The options depicted in the pictures referred to others' needs;"  $\alpha = .58$ ). We included the same control variables as in Experiment 1: options ratings (attractiveness, liking, satisfaction; 1 = *not at all*, 7 = *very much*;  $\alpha = .85$ ) and difficulty (1 = *easy*, 7 = *difficult*). We also included two new, exploratory control variables: mood (1 = *bad*, 7 = *good*) and task involvement (five items; e.g., of concern to me, meant a lot to me; 1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .94$ ). Finally, we assessed state narcissism ( $\alpha = .75$ ), state self-esteem ( $\alpha = .93$ ), and self-referencing ( $\alpha = .86$ ), as in Experiment 1.

## Results

### Manipulation checks

As intended, self-agency was higher in the choice-present ( $M = 5.81$ ,  $SD = 1.02$ ) than choice-absent ( $M = 3.17$ ,  $SD = 1.53$ ) condition,  $F(1, 206) = 215.89$ ,  $p < .001$ ,  $\eta^2 = .51$ . Also as intended, options were rated as more self-referent vs. other-referent in the agentic ( $M = 4.00$ ,  $SD = 1.55$ ) than communal ( $M = 2.41$ ,  $SD = 1.16$ ) domain,  $F(1, 206) = 91.63$ ,  $p < .001$ ,  $\eta^2 = .31$ . The manipulations were effective.



**Figure 4.** Indirect effect of choice (0 = *absent*; 1 = *present*) on state narcissism through self-referencing for agentic and communal domains in Experiment 2 (the direct effect, controlling for self-referencing, appears in parenthesis).

Note: Unstandardized regression coefficients are provided along the paths. \*No zero between LLCI and ULCI. \*\* $p < .01$ . \*\*\* $p < .001$ .

### Options ratings

The experimental stimuli were rated positively ( $M = 5.16$ ,  $SD = 1.13$  for the communal domain, and  $M = 5.16$ ,  $SD = 1.09$  for the agentic domain). They were also rated significantly higher from the scale midpoint,  $t(106) = 11.02$ ,  $p < .001$ ,  $d = 2.14$ , 95% CI = [.954, 1.373] for the agentic domain, and  $t(102) = 10.38$ ,  $p < .001$ ,  $d = 2.06$ , 95% CI = [.937, 1.382] for the communal domain. We obtained no significant main effects or interactions,  $ps > .17$ ,  $F_s < 1.94$ .

### Main findings

We implemented an Analysis of Variance (ANOVA) with choice and domain as independent variables, and self-referencing as a dependent variable. We obtained a main effect of choice,  $F(1, 206) = 17.71$ ,  $p < .001$ ,  $\eta^2 = .08$ : Choice present ( $M = 4.55$ ,  $SD = 1.48$ ) induced more self-referencing than choice absent ( $M = 3.62$ ,  $SD = 1.69$ ). We also obtained a main effect of domain,  $F(1, 206) = 5.35$ ,  $p = .022$ ,  $\eta^2 = .03$ : Self-referencing was higher in the agentic ( $M = 4.32$ ,  $SD = 1.69$ ) than the communal ( $M = 3.81$ ,  $SD = 1.58$ ) domain. Importantly, these main effects were qualified by a marginal interaction,  $F(1, 206) = 3.37$ ,  $p = .068$ ,  $\eta^2 = .02$  (Figure 3). Bonferroni pairwise comparisons ( $p = .0125$ ) revealed that self-referencing was higher in the agentic ( $M = 4.98$ ,  $SD = 1.30$ ) than communal ( $M = 4.08$ ,  $SD = 1.53$ ) domain,  $p = .004$ , when participants had a choice (choice-present condition), but self-referencing did not differ in the agentic ( $M = 3.67$ ,  $SD = 1.79$ ) and communal ( $M = 3.57$ ,  $SD = 1.60$ ) domains,  $p < .001$ , when participants lacked a choice (choice-absent condition). A similar ANOVA with state narcissism as the dependent variable yielded no significant main effects or interactions,  $ps > .19$ ,  $F_s < 1.70$  (Table 1). A similar ANOVA with state self-esteem as the dependent variable yielded only a significant main effect of domain, such that the agentic domain ( $M = 4.86$ ,  $SD = 1.40$ ) induced higher self-esteem than the communal domain ( $M = 4.44$ ,  $SD = 1.67$ ),  $F(1, 206) = 4.00$ ,  $p = .047$ ,  $\eta^2 = .02$ . No other main or interaction effects were significant,  $ps > .78$ ,  $F_s < 0.08$  (Table 1).

We proceeded to evaluate the hypothesis that the indirect effect of choice on state narcissism via self-referencing holds only for the agentic and not for the communal domain. In particular, we used the PROCESS macro for SPSS (Model 8; Hayes, 2013) to test a moderated mediation model with a 95% bias-corrected bootstrap confidence interval based on 5,000 bootstrap samples. We entered choice (dummy coded: 0 = *absent*, 1 = *present*) as the

**Table 3.** Correlations among all variables in Experiment 2.

	1	2	3	4	5	6
1. State narcissism (SNPI-14)	–	–	–	–	–	–
2. Self-referencing	.18**	–	–	–	–	–
3. State self-esteem	.34***	.25***	–	–	–	–
4. Options attractiveness	.08	.30***	.30***	–	–	–
5. Task difficulty	.05	.06	–.04	–.09	–	–
6. Mood	.18*	.43***	.40***	.41***	–.14*	–
7. Involvement	–.01	–.41***	–.22**	–.32***	–.09	–.49***

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

independent variable ( $X$ ), state narcissism as the dependent variable ( $Y$ ), product-specific self-referencing as the putative mediator ( $M$ ), and domain (dummy coded: 0 = *communal*, 1 = *agentic*) as the putative moderator ( $W$ ). The index of moderated mediation yielded a confidence interval that did not include zero, 95% CI = [.015, .828], suggesting a significant moderated mediation (Figure 4). Specifically, the indirect effect of choice on state narcissism was significant in the agentic domain,  $B = 0.48$ ,  $SE = 0.22$ , 95% CI = [.151, 1.034], but not in the communal domain,  $B = 0.19$ ,  $SE = 0.14$ , 95% CI = [–.013, .569]. Critically, a similar moderated mediation model with state self-esteem as the mediator was not significant, 95% CI = [–.466, .664]. Therefore, domain moderates the indirect effect of choice on narcissism through self-referencing, but not through self-esteem.

Controlling for self-referencing, there was no significant direct effect of choice on state narcissism, either in regards to the agentic domain,  $B = -0.30$ ,  $SE = 0.59$ ,  $p = .167$ , 95% CI = [–1.467, .873], or the communal domain,  $B = -0.84$ ,  $SE = 0.60$ ,  $p = .609$ , 95% CI = [–2.028, 0.348]. Finally, robustness checks showed that the moderated mediation model remained significant after controlling for option ratings, 95% CI = [.006, .826], task difficulty, 95% CI = [.028, .866], task involvement, 95% CI = [.068, .949], and mood, 95% CI = [.010, .697]. We present correlations among all variables in Table 3.

## Discussion

Experiment 2 demonstrated that domain of choice moderates the indirect effect of choice on narcissism via product-specific self-referencing. That is, Experiment 2 replicated Experiment 1 in showing that making a choice elevates narcissism via self-referencing in the agentic domain (consumer products), but not in the communal domain (charity causes). Again, there were no significant total effects of choice on narcissism, indicating that it is only through thinking about the self that choice augments narcissism. In all, agentic consumer choices are likely to raise narcissism due to relatively strong self-referent processing. Communal consumer choices, on the contrary, do not produce the same amount of thinking about the self, as they direct attention to others' needs or wants rather than one's own, and so are less likely to augment narcissism.

## Experiment 3

Experiment 1 showed that consumer choices increase self-referencing, which predict rises in narcissism. Experiment 2 established a boundary of this effect, restricting it to agentic rather than communal choices. Yet, close inspection of the stimuli used so far suggests that

almost all of them can be classified as products that are consumed in public and hence entail self-presentational concerns. Agentic choices, then, may have been confounded with public choices (Bearden & Etzel, 1982). Public (vs. private) products are more often used to express one's identity and to draw inferences about others' identities (Berger & Heath, 2007). As such, choosing among public (vs. private) products may induce stronger self-presentational considerations and higher self-referencing. We wondered, in Experiment 3, whether the obtained effect (consumer choice augmenting narcissism via self-referencing) is bounded only to public products or extends to private products as well.

We had an additional goal. In Experiments 1–2, we assessed self-referencing in relation to the products in question (product-specific self-referencing; Sood & Forehand, 2005). It is possible, though, that this form of self-referencing is not necessary for the effect to occur. That is, choice of agentic products may conduce to augmented narcissism via general self-referencing (i.e., thoughts about the self that are untethered to products). We tested this possibility in Experiment 3.

### Pre-test

We first pre-tested the products for use in the main experiment. In particular, we examined whether participants perceived these products as public or private. We recruited 142 US residents (94 men, 48 women), aged between 18 and 75 years ( $M = 33.56$ ,  $SD = 12.84$ ), on the online crowdsourcing platform Prolific Academic. This was a convenience sample, as we attached the pre-test on the back of an unrelated study. Participants received brief descriptions of public products ("A public product is one that other people are aware you possess and use. If they want to, others can identify the product with little or no difficulty") and private products ("A private product is one used at home or in private at some location. Except for your immediate family, people would be unaware that you own or use the product") adjusted from Bearden and Etzel (1982). Then, they were presented with a list of products, and rated how public or private each was (1 = *public*, 6 = *private*). The list included the nine products used in Experiments 1–2, assumed to be public (jeans, jacket, backpack, sunglasses, sneakers, sofa, mug, polo shirt, watch), and 10 new products assumed to be private (mattress, painkillers, hand soap, hammer, toothpaste, stapler, glass cleaner, scissors, dish soap, vacuum cleaner). In addition, participants rated the extent to which (1) each product contributed to self-expression, namely, a person's ability to express their identity (1 = *not at all*, 6 = *very much*), and (2) people used each product to make inferences about others, namely, whether they learn a lot about a person based on the specific product choice (1 = *not at all*, 6 = *very much*) (Berger & Heath, 2007).

Participants rated the nine products used in Experiments 1–2 ( $M = 2.24$ ,  $SD = 0.98$ ;  $\alpha = .86$ ) as more public than the 10 new products ( $M = 3.91$ ,  $SD = 1.46$ ;  $\alpha = .94$ ),  $t(141) = 12.56$ ,  $p < .001$ . Moreover, participants rated the products used in Experiments 1–2 ( $M = 4.32$ ,  $SD = 1.07$ ;  $\alpha = .92$ ) as more suitable for self-expression than the new products ( $M = 1.87$ ,  $SD = 0.95$ ;  $\alpha = .92$ ),  $t(141) = 23.54$ ,  $p < .001$ , and also as more suitable for making inferences about others ( $M = 4.01$ ,  $SD = 1.06$ ;  $\alpha = .92$ ) than the new products ( $M = 1.77$ ,  $SD = 0.87$ ;  $\alpha = .91$ ),  $t(141) = 22.19$ ,  $p < .001$ . We proceeded to remove painkillers from the list of private products, as painkillers had the lowest score on the public-private dimension and the highest scores on self-expression and inference-making. Therefore, in the main experiment, we used

the remaining nine products in the private condition and the nine products of Experiments 1–2 in the public condition.

## Method

### Participants and design

Participants were 253 US residents (149 women, 104 men) aged between 18 and 75 years ( $M = 33.16$ ,  $SD = 11.48$ ). They were recruited from MTurk, and had not taken part in our previous experiments. We aimed for a sample size similar to that of Experiment 2, given the parallel design. In particular, we used in Experiment 3 a 2 (choice: absent vs. present)  $\times$  2 (domain: private vs. public) between-subjects design.

### Procedure

We modeled closely the procedure after that of Experiment 1, with the addition of a private domain condition. For the manipulation of choice (present vs. absent), we used the same instructions as in Experiments 1–2 (make a choice vs. select the one in greyscale). For the manipulation of domain, we proceeded as follows. In the public condition, we used the same choice sets as in Experiments 1–2 (agentic). In the private condition, we used three pictures for each one of the nine products (mattress, hand soap, hammer, toothpaste, stapler, glass cleaner, scissor, dish soap, vacuum cleaner).

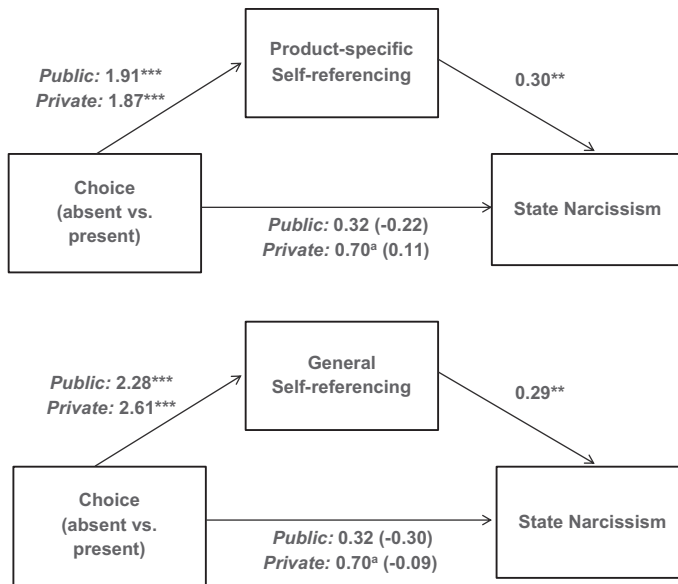
Further, we implemented the same self-agency measure as in Experiments 1–2 for a choice manipulation check ( $\alpha = .85$ ) and the same measures as in the pre-test (private/public, self-expressive, inferential) for a domain manipulation check. We also measured options attractiveness (1 = *not at all attractive*, 7 = *very attractive*), difficulty (1 = *easy*, 7 = *difficult*), and mood (1 = *bad*, 7 = *good*) as control variables. In addition, we assessed state narcissism ( $\alpha = .64$ ) and state self-esteem ( $\alpha = .90$ ) as in Experiments 1–2. Finally, we assessed self-referencing in two ways. First, we used the same items as in prior experiments, addressing product-specific self-referencing ( $\alpha = .84$ ). Second, we added three items addressing general self-referencing. They were: “To what extent did you think about yourself and your needs?”, “To what extent did you think about yourself and your wishes?”, “To what extent did you think about yourself in general?” (1 = *not at all*, 7 = *very much*;  $\alpha = .96$ ).

## Results

### Manipulation checks

As intended, self-agency was higher in the choice-present ( $M = 5.99$ ,  $SD = 0.80$ ) than in the choice-absent ( $M = 3.99$ ,  $SD = 1.34$ ) condition,  $F(1, 249) = 211.41$ ,  $p < .001$ ,  $\eta^2 = .46$ . Also as intended, products were rated as more public (vs. private) in the public ( $M = 1.95$ ,  $SD = 1.17$ ) than in the private ( $M = 3.23$ ,  $SD = 1.79$ ) condition,  $F(1, 249) = 48.04$ ,  $p < .001$ ,  $\eta^2 = .16$ ; more self-expressive in the public ( $M = 4.31$ ,  $SD = 1.38$ ) than in the private ( $M = 2.34$ ,  $SD = 1.21$ ) condition,  $F(1, 249) = 147.44$ ,  $p < .001$ ,  $\eta^2 = .37$ ; and lending themselves to inference-making more in the public ( $M = 4.15$ ,  $SD = 1.13$ ) than in the private ( $M = 2.54$ ,  $SD = 1.29$ ) condition,  $F(1, 249) = 111.54$ ,  $p < .001$ ,  $\eta^2 = .31$ . Both manipulations were effective.





**Figure 5.** Indirect effect of choice (0 = *absent*; 1 = *present*) on state narcissism through product-specific self-referencing (upper panel) and general self-referencing (lower panel) for public and private products in Experiment 3 (the direct effect, controlling for self-referencing, appears in parenthesis).

Note: Unstandardized regression coefficients are provided along the paths. <sup>a</sup> $p < .10$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### Options ratings

The experimental stimuli were rated positively both in the private ( $M = 4.67$ ,  $SD = 1.34$ ) and in the public ( $M = 4.98$ ,  $SD = 1.18$ ) condition,  $F(1, 249) = 3.99$ ,  $p = .047$ ,  $\eta^2 = .02$ . Importantly, the products were rated significantly higher from the scale midpoint both in the private condition,  $t(124) = 5.62$ ,  $p < .001$ ,  $d = 1.01$ , 95% CI = [.435, .909], and in the public condition,  $t(127) = 9.41$ ,  $p < .001$ ,  $d = 1.67$ , 95% CI = [.777, 1.191].

### Main findings

A  $2 \times 2$  ANOVA on product-specific self-referencing yielded a main effect of choice,  $F(1, 249) = 96.04$ ,  $p < .001$ ,  $\eta^2 = .28$ : Choice present ( $M = 4.87$ ,  $SD = 1.31$ ) induced more self-referencing than choice absent ( $M = 2.98$ ,  $SD = 1.74$ ). It also yielded a marginal main effect of domain,  $F(1, 249) = 3.78$ ,  $p = .053$ ,  $\eta^2 = .02$ : Public products ( $M = 4.13$ ,  $SD = 1.89$ ) induced more self-referencing than private products ( $M = 3.73$ ,  $SD = 1.69$ ). These effects were unqualified by the interaction,  $F(1, 249) = 0.01$ ,  $p = .917$ ,  $\eta^2 < .001$ . A similar ANOVA on general self-referencing produced a choice main effect,  $F(1, 249) = 139.13$ ,  $p < .001$ ,  $\eta^2 = .36$ : Choice present ( $M = 5.38$ ,  $SD = 1.49$ ) induced more self-referencing than choice absent ( $M = 2.94$ ,  $SD = 1.81$ ). It also produced a marginal domain main effect,  $F(1, 249) = 3.03$ ,  $p = .083$ ,  $\eta^2 = .01$ : Public products ( $M = 4.96$ ,  $SD = 2.05$ ) induced more self-referencing than private products ( $M = 3.97$ ,  $SD = 2.05$ ). These effects were also unqualified by the interaction,  $F(1, 249) = 0.66$ ,  $p = .417$ ,  $\eta^2 = .004$ . Finally, a similar ANOVA on state narcissism produced no main effects or interactions,  $ps > .11$ ,  $Fs < 2.45$ , and the same was true for an ANOVA on state self-esteem,  $ps > .24$ ,  $Fs < 1.38$  (Table 1).

**Table 4.** Correlations among all variables in Experiment 3.

	1	2	3	4	5	6
1. State narcissism (SNPI-14)	–	–	–	–	–	–
2. Product-specific self-referencing	.20**	–	–	–	–	–
3. General self-referencing	.21**	.84***	–	–	–	–
4. State self-esteem	.22**	.17**	.15*	–	–	–
5. Options attractiveness	.08	.43***	.40***	.11	–	–
6. Task difficulty	–.02	.03	.05	.01	–.09	–
7. Mood	.15*	.35***	.24***	.20**	.44***	–.06

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

In order to examine whether the indirect effect of choice on state narcissism via self-referencing held both for private and public products, we used the PROCESS macro for SPSS (Model 8; Hayes, 2013) to test a moderated mediation model with a 95% bias-corrected bootstrap confidence interval based on 5,000 bootstrap samples. First, we tested the model with product-specific self-referencing as a putative mediator. We entered choice (dummy coded: 0 = *absent*, 1 = *present*) as the independent variable ( $X$ ), state narcissism as the dependent variable ( $Y$ ), product-specific self-referencing as the putative mediator ( $M$ ), and domain (dummy coded: 0 = *private*, 1 = *public*) as the putative moderator ( $W$ ). Results showed that the indirect effect of choice on state narcissism was significant both for public products,  $B = 0.57$ ,  $SE = 0.23$ , 95% CI = [.147, 1.052] and for private products,  $B = 0.56$ ,  $SE = 0.21$ , 95% CI = [.163, .993]. Moreover, the index of moderated mediation, 0.01,  $SE = 0.13$ , yielded a confidence interval that included zero, 95% CI = [–.211, .296], suggesting that the two indirect effects did not differ significantly from each other (Figure 5, upper panel). Next, we tested the same model with general self-referencing as the putative mediator. Results indicated that the indirect effect of choice on state narcissism was significant both for public products,  $B = 0.65$ ,  $SE = 0.26$ , 95% CI = [.211, 1.223] and for private products,  $B = 0.75$ ,  $SE = 0.27$ , 95% CI = [.255, 1.351]. Moreover, the index of moderated mediation, –0.10,  $SE = 0.13$ , yielded a confidence interval that included zero, 95% CI = [–.421, .113], suggesting that the two indirect effects did not differ significantly from each other (Figure 5, lower panel). These findings reveal that (1) choice induces state narcissism via self-referencing irrespective of the public or private nature of the products in question, and (2) this effect holds for both product-specific and general self-referencing.

Critically, a similar moderated mediation model with state self-esteem as the mediator was not significant, 0.10,  $SE = 0.15$ , 95% CI = [–.146, .493], and neither were the indirect effects for public products,  $B = 0.13$ ,  $SE = 0.11$ , 95% CI = [–.037, .412] or for private products,  $B = 0.03$ ,  $SE = 0.10$ , 95% CI = [–.172, .245]. These results converge with all previous findings that choice induces state narcissism only via self-referencing and not via self-esteem. Also, self-referencing, be it product-specific or general, did not qualify the results. Controlling for product-specific self-referencing, there was no significant direct effect of choice on state narcissism, either in the public condition,  $B = –0.25$ ,  $SE = 0.50$ ,  $p = .624$ , 95% CI = [–1.227, .738] or the private condition,  $B = 0.15$ ,  $SE = 0.50$ ,  $p = .767$ , 95% CI = [–.840, 1.137]. Similarly, controlling for general self-referencing, there was no significant direct effect of choice on state narcissism, either in the public condition,  $B = –0.33$ ,  $SE = 0.51$ ,  $p = .516$ , 95% CI = [–1.330, .669] or in the private condition,  $B = –0.05$ ,  $SE = 0.53$ ,  $p = .931$ , 95% CI = [–1.086, .994]. Finally, robustness checks indicated that the two conditional indirect effects (public, private)

remained significant after controlling for option ratings, task difficulty, and mood. We present correlations among all variables in Table 4.

## Discussion

Experiment 3 made three substantive contributions. First, it provided an additional (the third) replication of the indirect effect of consumer choice on state narcissism via self-referencing, attesting to the effect's robustness. As before, we found no total effect of choice on narcissism. Second, the experiment indicated that the effect holds not only for choices of public products, as was the case in Experiments 1–2, but also for choices of private products. Even though self-referencing was stronger for public products, choosing among products consumed privately induced sufficient self-referencing to raise narcissism. Third, the experiment showed that the effect generalizes across product-specific self-referencing and general self-referencing: Thinking about the self in relation to products is as effective in augmenting narcissism as simply thinking about the self.

In Experiment 2, we found that agentic choices, but not communal choices, raised narcissism via self-referencing. Choice domain emerged as a moderator. However, in Experiment 3, product domain did not emerge as a moderator, although self-referencing was higher for public than private products. This seeming paradox has an explanation. In contrast to making communal choices (choosing for charities), making agentic choices among private products entails self-referencing to a large extent, too. After all, choosing among private products is a type of agentic choice and thus invokes the self to a considerable degree – certainly much more than communal choices do. The data are consistent with this interpretation. In Experiment 3, product-specific self-referencing in the choice-present/private condition ( $M = 4.67$ ,  $SD = 1.06$ ) was significantly higher from the scale midpoint,  $t(61) = 4.99$ ,  $p < .001$ ,  $d = 1.28$ , 95% CI = [.403, .941], and that was the case also for general self-referencing ( $M = 5.28$ ,  $SD = 1.52$ ),  $t(61) = 6.65$ ,  $p < .001$ ,  $d = 1.70$ , 95% CI = [.898, 1.672]. This was not so, however, for communal choices. In Experiment 2, self-referencing in the choice-present/communal condition ( $M = 4.08$ ,  $SD = 1.53$ ) was not significantly higher from the scale midpoint,  $t(47) = 0.38$ ,  $p = .713$ ,  $d = 1.77$ , 95% CI = [–.360, .527], indicating that participants did not generate many thoughts about themselves when choosing charities. Hence, although the distinction between agentic and communal choices provides a meaningful boundary condition of the obtained effect, the distinction between public and private products does not do so, because choice of private products elicits a fair amount of self-referencing.

## General discussion

Drawing on various literature streams regarding self and choice, we developed theory-driven hypotheses about the relation between consumer choice and narcissism. In particular, we hypothesized that the act of choice augments state narcissism by increasing self-referent processing. Results of three experiments showed that choice has an indirect positive effect on narcissism via self-referencing, but no total effect. Experiment 1 demonstrated that making consumer choices in the agentic domain (i.e., for one's own self) elevates narcissism by increasing self-referent processing. In Experiment 2, choice domain emerged as a moderator: agentic choices (e.g., consumer products) raised narcissism via increased self-referencing,

but communal choices (e.g., charity causes) did not. Experiment 3 illustrated that this finding generalizes to public and private products.

Critical for the interpretation of these findings is an understanding of what an indirect effect implies in the absence of a total effect. Such a pattern may constitute evidence that two opposing processes operate in parallel and suppress a total effect (Hayes, 2009; Rucker et al., 2011; Zhao et al., 2010). That is, the indirect effect does not translate into a total effect, because an opposite force (i.e., another indirect effect in the opposite direction) is at work, which eventually cancels out the first indirect effect leaving the total effect intact. For example, prior investigations have found no total effect of environmentally-friendly behavior on positive feelings, but instead reported an indirect effect via enhancement of a positive self-image (Venhoeven, Bolderdijk, & Steg, 2016). Thus, although engaging in environmentally-friendly behavior leads to a positive self-image, which in turn makes individuals feel good, this type of behavior has no overall impact on how good individuals feel. The reason might be that environmentally-friendly behavior not only boosts one's self-image, but also has negative side effects (e.g., social costs, financial costs) that undermine positive feelings. Similarly, in our research, making consumer choices increases thoughts about the self, which in turn elevate narcissism. Yet, consumer choices do not cause narcissism on their own. Making consumer choices may have another, concurrent effect, which counteracts the indirect effect through self-referencing and decreases narcissism, leaving the total effect on narcissism seemingly intact. Although choice induces self-referencing, which facilitates narcissism, it may also elicit other states that inhibit narcissism. Self-affirmation could be an example of such a state.

Self-affirmation refers to endorsement of values that demonstrate one's adequacy and help maintain "an image of oneself as able to control important adaptive and moral outcomes in one's life" (Cohen & Sherman, 2014, p. 336). Making consumer choices may trigger self-affirmation. For example, self-affirmation can be elicited through the choice of aesthetic consumer products (Townsend & Sood, 2012) or status consumer goods (Sivanathan & Pettit, 2010). Self-affirmation in turn can alleviate maladaptive behaviors by reducing defensive biases (Cohen & Sherman, 2014), especially among narcissists (Thomaes, Bushman, de Castro, Cohen, & Denissen, 2009). Thus, it is possible that consumer choices, besides inducing self-referencing, simultaneously engender self-affirmation, which in turn counteract the effect of self-referencing on narcissism, resulting in no total effect. Our data support the possibility that another force, operating in parallel to self-referencing, acted in the opposite direction, countervailing its effect on narcissism. In support of this possibility, the direct effect of choice on narcissism after controlling for self-referencing had a negative sign in Experiments 1–3, although it was statistically significant only in Experiment 1. Choice, then, may even lower narcissism, after controlling for self-referencing, because of increased self-affirmation. Follow-up work needs to examine this possibility.

By manipulating choice domain in Experiment 2, we used a moderation-of-process approach to examine further the role of self-referencing and clarify the underlying mechanism (Jacoby & Sassenberg, 2011; Spencer, Zanna, & Fong, 2005). When choices did not involve extensive self-referent processing in the first place, as is the case of charity, the indirect effect of choice on narcissism was no longer present. This calls for a caveat: It is not consumer choices per se that raise narcissism, but rather the degree of self-referencing involved in choosing. Assuming that consumer choices vary in the extent to which they

involve thoughts about the self, self-referencing might be the key in explaining when and how such choices promote narcissism.

We considered charity as an example of consumer choices with low self-referent processing. Other examples are gift giving or making purchases for collectives (e.g., family, friends, partners) rather than for the self. Yet, self-image concerns have been apparent in some of these research streams, too. For example, when the giver's identity is in conflict with the gift, gift giving represents an identity threat, which can motivate compensatory consumption to restore one's self-image (Ward & Broniarczyk, 2011). In this case, gift giving is likely to endorse intensive thoughts about the self and the threatened identity. In line with such theorizing, this could be a situation where choice, even though in a gift giving context, elevates narcissism through self-referencing. In addition, charitable giving can be motivated not only by selfless but also by selfish altruism (Krishna, 2011). Again, it is the degree of self-referencing that will determine the resulting level of narcissism rather than an a priori and dichotomous definition of the situation as self-referent or other-referent. More broadly, we suggest that accounting for the degree of self-referent processing involved in choosing can contribute to a more nuanced understanding of decision-making processes.

Our findings have theoretical implications for research on consumption and identity as well as practical implications for the effectiveness of marketing trends. In recent years, the marketplace has been characterized by a remarkable growth of consumer choice (Broniarczyk & Griffin, 2014; Kahn et al., 2014; Mick et al., 2004). Critically, not only do consumers have more options than ever before, but also domains not traditionally considered a matter of choice are now viewed as such. The rise of mass product customization explicates this trend, as it gives consumers the opportunity to tailor products to their individual taste (Simonson, 2005). For example, consumers can customize their Nike sneakers by choosing several features at each step of the product configuration process and finally create their own unique product. Features for which consumers had no choice (e.g., which color the sole should be or whether air cushions should be visible) are now open to it, and indeed require it. These trends in the marketplace resonate with wider societal changes, where identities are not fixed or inherited, but are rather shaped through self-expressive choice (Giddens, 1991; Inglehart & Oyserman, 2004). Prior work has shown that construing simple everyday acts as choices has controversial consequences at the interpersonal level, such as lower concern about wealth inequality (Savani & Rattan, 2012) and lower support of policies promoting societal welfare (Savani, Stephens, & Markus, 2011). Our research further suggests that increasingly construing life domains as a matter of choice affords more opportunities to engage in self-referencing, which in turn may give rise to narcissism. If individuals become more narcissistic due to choice-induced self-referencing, they may also become more demanding and harder to satisfy as consumers (Boyd & Helms, 2005). Ironically, widespread provision of choice might backfire, making consumers more narcissistic or entitled. Research on this topic would enrich the product customization literature, which has mostly been concerned with benefits of product customization such as higher valuation of and satisfaction with customized products (Franke, Schreier, & Kaiser, 2010). Product customization, however, may have unanticipated consequences. Giving consumers the chance to construe all steps of the product design process as self-expressive choices may involve extensive self-referencing with the possibility of augmenting narcissism and contributing to highly demanding consumers.

Our research has several potential limitations. To begin, it examined the effect of consumer choices on narcissism with hypothetical choices that did not entail costs for participants. However, the financial aspect did not play a role in the theorizing; on the contrary, the designs tried to control for such concerns by asking participants to choose irrespective of budget constraints. By doing so, the studies focused primarily on the psychological process of choosing. Moreover, our research engaged in a stringent test of the hypotheses, using a minimal experimental design involving only hypothetical choices and naturally occurring underlying mechanisms. In real-life situations or with designs using incentivized choices, one would expect the effects to be even stronger. Another potential limitation is that, as a foray into these issues, we addressed only one path from choice to narcissism. Besides self-referencing, other variables could be of relevance, such as power. Future empirical efforts would need to assess additional variables that might influence the choice-narcissism relation. Follow-up work would also need to test the replicability of our findings in varied cultural contexts. Finally, although our experimental setup satisfied the first part of the sequential ignorability assumption for causal mediation analysis through random assignment of participants to conditions, the setup did not satisfy the second part of the assumption (Imai, Keele, & Tingley, 2010). That is, whereas we can conclude that the choice-to-self-referencing, and choice-to-state narcissism, relations are unconfounded by unmeasured variables, we cannot conclude that the self-referencing-to-state narcissism relation is unconfounded by such variables. Follow-up work would need to address this issue by randomly assigning participants to different self-referencing conditions.

This research is the first to examine how the act of making consumer choices – a ubiquitous practice that lies at the heart of consumption (Rick et al., 2014) – influences narcissism. The findings add to a growing body of research challenging the view that choice is unconditionally beneficial for individual or societal well-being (Markus & Schwartz, 2010; Schwartz & Cheek, 2017). Moreover, the research enriches the consumer psychology literature on narcissism (Cisek et al., 2014; Lee et al., 2013; Sedikides et al., 2007) with a novel perspective, suggesting that narcissism can be treated as a state that is temporarily elevated in a consumer context by self-referent processing as a result of the act of choosing. With rising opportunities for consumer choices (Kahn et al., 2014; Mick et al., 2004) and rising levels of narcissism (Twenge & Campbell, 2009; Twenge & Foster, 2010), these issues are becoming more topical and deserving of empirical scrutiny.

## Notes

1. Whereas some narcissists satisfy self-motives of grandiosity, esteem, entitlement, and power in agentic domains (Jones & Brunell, 2014; Morf et al., 2011; Thomaes et al., 2018), other narcissists satisfy the same motives in communal domains (Gebauer, Sedikides, Verplanken, & Maio, 2012; Giacomini & Jordan, 2015; Luo, Cai, Sedikides, & Song, 2014). The former are termed agentic narcissists, the latter communal. In the current research, we focused exclusively on agentic narcissism.
2. We wish to clarify our use of the terms total effect, direct effect, and indirect effect (Hayes, 2013). By total effect, we refer to the influence of choice on state narcissism. By direct effect, we refer to the influence of choice on state narcissism after controlling for self-referencing. Finally, by indirect effect, we refer to the influence of choice on state narcissism via self-referencing.
3. In all experiments, in addition to the analyses presented above, we tested a multiple mediation model with self-referencing and self-esteem as parallel mediators. In Experiments 1 and 3, mediation was significant only through self-referencing, not through self-esteem. In Experiment



2, neither mediator was significant when we entered them together. (Results are available upon request.) On balance, and until further evidence accumulates, we conclude that mediation is significant via self-referencing, but not necessarily via self-esteem. This is further corroborated by the fact that, in Experiment 2, there was no main effect of choice on self-esteem.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Appendix

### NPI-14

Read each pair of statements below and select the one that comes closest to describing your current feelings and beliefs about yourself. You may feel that neither statement describes you well, but pick the one that comes closest. Please complete all pairs.

- Right now, I would prefer to be a leader. (N)
- It makes little difference to me whether I am a leader or not, right now.
- Right now, I am not sure if I would make a good leader.
- I see myself as a good leader, right now. (N)
- I think I depend on other people to get things done, right now.
- Right now, I think I am unlikely to depend on anyone else to get things done. (N)
- I feel more capable than other people, right now. (N)
- Right now, I feel there is a lot I can learn from other people.
- I think I am much like everybody else, right now.
- Right now, I think I am an extraordinary person. (N)
- Right now, compliments embarrass me.
- I like to be complimented, right now. (N)
- Right now, I try not to be a show off.
- I will show off if I get a chance, right now. (N)
- Right now, I feel modesty doesn't become me. (N)
- I feel I am essentially a modest person, right now.
- Right now, I can read people like a book. (N)
- I feel people are sometimes hard to understand, right now.
- Right now, People might believe what I tell them.
- I can make anybody believe anything I want them to, right now. (N)
- Right now, I think my body is nothing special.
- I like to look at my body, right now. (N)
- Right now, I like to look at myself in the mirror. (N)
- I am not particularly interested in looking at myself in the mirror, right now.
- Right now, I feel I will never be satisfied until I get all that I deserve. (N)
- I take my satisfactions as they come, right now.
- I expect a great deal from other people, right now. (N)
- Right now, I like to do things for other people.

N = Indicates answers that are coded as narcissistic.