Extrinsic and Intrinsic Contingent Self-Esteem and Materialism: A Correlational and Experimental Investigation

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ABSTRACT

While there is substantial evidence regarding the role of generalized self-esteem and identity deficits as potential antecedents of materialism, the exact nature of the domains from which such self-esteem deficits (that breeds materialism) emanate has remained unexplored. Moreover, there is scant research attention on intrinsically oriented contingent self-esteem and how it relates to materialism. The present study investigated contingent self-esteem in extrinsic domains as antecedents of materialism. It was shown that extrinsic and intrinsic forms of contingent self-esteem relate differently with materialism such that intrinsically contingent self-esteem is incompatible with materialistic attitudes. Study 1 (*N* = 231 Singaporean adults) furnished cross-sectional evidence that extrinsically oriented contingent self-esteem positively predicts materialism. Study 2 (*N* = 206 undergraduates from a public university in Singapore) found that intrinsically oriented contingent self-esteem is negatively related to materialism. Study 3 (*N* = 105 Singaporean undergraduates) showed that experimental induction of extrinsic and intrinsic contingent self-esteem leads to higher or lower materialism among participants respectively. The findings advance understanding on the self-esteem-materialism link by showing how the domain-specific view of self-esteem has the potential to promote or discourage materialism based on whether self-esteem is anchored to external or internal domains. Recommendations for intervention researchers and practitioners are proposed. © 2017 Wiley Periodicals, Inc.

In modern-day consumerist societies, there is a constant invasion of messages, which suggest that financial success and material wealth are highly valued outcomes that people should strive for. There seems to be a deep penetration of the idea that the material "goods" life is a route to attaining fame, love, and even happiness. However, there also exists a popular notion that money cannot buy happiness. Materialism may be defined as a "preoccupation with, desire for and emphasis on, material goods and money to the neglect of other matters" (Garoarsdottir, Jankovic, & Dittmar, 2008). The most consistent finding about materialism centers around its association with a number of negative psychological outcomes. For example, materialism has been found to undermine subjective well-being (Garoarsdottir et al., 2008; Vansteenkiste, Duriez, Simons, & Soenens, 2006; Webb & Wong, 2014), meaning in life and self-determination (Kashdan & Breen, 2007), self-actualization, and vitality (Kasser & Ahuvia, 2002). A recent comprehensive meta-analysis (comprising 753 effect sizes) examining the negative association between materialism and personal

well-being revealed that materialism is associated with significantly lower well-being for most widely used materialism measures with largest effects on risky health and consumer behaviors and negative self-appraisals (Dittmar, Bond, Hurst, & Kasser, 2014).

In comparison, examination of the antecedents of materialism has received lesser research attention. Dittmar et al. (2014) advocated the need for advances in the theoretical and empirical examination of the underlying processes of materialism. Insofar as materialism represents itself as a sociocultural condition that hampers mental health, answering questions about factors that promote its emergence in people's lives is important. In an attempt to explain why people turn to materialism, researchers have largely delineated two main pathways (Kasser, Ryan, Couchman, & Sheldon, 2004). First, there seems to be a *socialization* pathway, which suggests that an individual may develop materialistic values when he/she is exposed to materialistic models and values from an early age. Interaction with parental figures and peers leading materialistic lifestyles makes children focus more on material

acquisitions as a way to fit in. The ubiquitous television and online media constantly bombard children as well as adolescents with images emphasizing consumption of a variety of products. This is evidenced by the increasing brand consciousness among the younger generations as documented in several previous studies (Achenreiner & John, 2003; Nelson & McLeod, 2005). In order to acknowledge the role of value orientations as precursors of materialism, Karabati and Cemalcilar (2010) found that self-enhancement values such as power, achievement, and hedonism were highly predictive of materialism in a large sample of Turkish university students. Thus, the internalization of materialistic values from parents, peers, and the larger community leads people to adopt these values at early stages of socialization. For example, Kasser, Ryan, Zax, and Sameroff (1995), showed that teenagers who rated financial success aspirations relatively higher than more prosocial aspirations tended to be raised in disadvantaged socioeconomic backgrounds, and their mothers also valued financial success highly. Banerjee and Dittmar (2008) demonstrated the role of peer pressure and peer rejection in predicting greater materialism. These early socialization experiences foster materialism through passive observational learning from socialization agents at one level and by fostering an implicit belief that one needs to acquire material possessions in order to feel accepted and valued at a deeper level.

The second pathway, the *self-esteem repair* pathway proposes that feelings of insecurity or self-doubt are generated when life's experiences do not afford an individual with feelings of autonomy, competence, and connectedness with social others. Generally, such life experiences may range from the immediate interpersonal environments to the more distal socioeconomic environments. In order to fill the void (empty self) created by low self-esteem, individuals turn to materialism as a compensatory strategy (Reeves, Baker, & Truluck, 2012). Intuitively, this compensatory strategy seems effective because material possessions have communicative power and thus helps to build one's personal and social identity. For instance, clothes, cars, gadgets, travel, etc. are all symbols of social standing and socioeconomic status, which may facilitate image building (Dittmar, 2008). Materialism as a self-esteem repairing mechanism is productive especially in the short-term, in terms of temporarily providing relief from the self-doubt provoking situation.

Research examining low self-esteem/self-doubt as an antecedent condition of materialism has provided consistently corroborating evidence. For instance, Park and John (2011) found that individuals with low implicit self-esteem were more materialistic than individuals with high implicit self-esteem. Moreover, they showed experimentally that inducing high implicit self-esteem reduces materialism. A recent study by Ruvio, Somer, and Rindfliesch (2014) found that low levels of self-esteem seem to be the underlying mechanism, which drives the amplifying effect of materialism on stress and maladaptive consumption when faced with existential security threats. Other lines of research have shown that overcoming self-doubt (as a financial goals motive) is the strongest negative predictor of subjective well-being compared with other predictors such as happiness, success, and identity (Garoarsdottir et al., 2008; Srivastava, Locke, & Bartol, 2001). In addition to these correlational studies, three experimental studies have suggested that feelings of self-doubt tend to interfere with peoples' self-valuing process and orient them toward materialistic concerns (Chang & Arkin, 2002; Chaplin & John, 2007; Sheldon & Kasser, 2008). The Chang and Arkin (2002) study employed a priming technique in which they asked participants to memorize general self-doubt-related words (insecure, uncertainty, etc.) and found that self-doubt-induced participants showed a higher level of materialism. Chaplin and John (2007) induced high self-esteem among adolescents by showing them a crafted paper plate labeled "nice things about me" made by the adolescents' classmates and teachers. Participants in the control condition received their "nice things about me" plate after the completion of the study. The results showed that participants in the high-self-esteem prime condition reported lower materialism than those in the control condition. While these two studies examined general self-esteem as an antecedent of materialism, Sheldon and Kasser (2008) made an attempt to delineate distinct types of psychologically damaging self-esteem threats that encourage people to emphasize extrinsic goals of attractive appearance, financial success, and social popularity. They experimentally induced existential, economic, and interpersonal threats and found that such threats cause greater endorsement of extrinsic aspirations. However, it is noted that these psychological threats are less likely to be routinely encountered by individuals in their daily lives. While the inevitability of death (existential threat) and the possibility of economic struggle qualify as psychologically important threats, they are relatively abstract and thus probably less likely to be experienced as regular hazards to one's self-esteem. The current research focuses on examining the more common, routinely encountered, and salient threats to self-esteem such as threats to one's appearance, social standing, and image.

Thus, while both correlational and experimental evidence suggests that feelings of low self-worth may lead people to have more materialistic outlooks toward life, the specific nature of this self-doubt/insecurity is unclear. None of the studies attempted to examine routinely encountered domains from which this insecurity might be emanating. It is proposed that the self-determination theory (SDT) construct of contingent self-esteem (CSE) is very useful in this regard and can be seen as an antecedent of materialistic orientations. Further, the distinction between extrinsic and intrinsic CSE may be particularly useful in furthering understanding about the domains of self-doubt that are particularly susceptible to materialism. Deci and Ryan (1995) defined contingent self-esteem as, "feelings about oneself that result from or are dependent

upon matching some standard of excellence or living up to some interpersonal or intra-psychic expectations" (p. 32). According to SDT, contingent self-esteem is fragile because it requires perpetual validation. On the other hand, true self-esteem is a result of actions that are self-determined, intrinsically satisfying, chosen out of genuine interest, and importance for the individual rather than due to externally imposed criteria. Thus, SDT has a domain-specific view of contingent self-esteem such that people's self-esteem may be dependent, or contingent, upon performance in one or more specific life domains that the individual deems personally meaningful and important. Some people may derive their self-esteem from achievement domains (academics, sports), while others from money/wealth, public image, and from obtaining social approval. The aforementioned domains are essentially extrinsic (externally regulated and evaluated) domains. On the other hand, people may have their self-esteem contingent upon relatively intrinsic domains such as being self-congruent, authentic, and developing themselves in which case their self-esteem is considered to be true self-esteem. The hallmark of intrinsically contingent/true self-esteem is that it rises when behavior is in accord with intrinsic human motivations of authenticity and personal growth and it drops when behavior is not conducive to inner values and personal growth. Typically, when people have intrinsically contingent self-esteem/true self-esteem, accomplishments do not lead to feelings of superiority and failures do not signal worthlessness (Deci & Ryan, 1995). Such people may experience discomfort if pressured to act in ways that are not rooted in authenticity and self-contact. Although Crocker and Park (2004) have regarded family support, virtue and God's love as relatively internal contingencies of self-esteem, other researchers have argued that these seemingly internal contingencies actually reflect external cultural and societal standards that people are expected to adhere to rather than their own personal values, interests, and integrated goals (Vonk & Smit, 2012). Therefore, in the current studies, intrinsically contingent self-esteem is defined as self-esteem that is based upon self-development, self-congruency, and authenticity in the various roles that individuals take on in their lives rather than familial or cultural expectations of a virtuous life.

This distinction between extrinsic and intrinsic domains of contingent self-esteem is important because it is argued that it is only certain "extrinsic" forms of CSE that predispose an individual to become materialistic. While the apparent overlap between extrinsically contingent self-esteem and materialistic values has been mentioned in theoretical debates (Kasser 2002), empirical investigation of the underlying relationships is clearly lacking. To date, only one study has tested the relationship between overall contingent self-esteem and compulsive buying tendencies (Roberts, Manolis, & Pullig, 2014) and found that CSE was positively related to compulsive buying and that this relationship was mediated by fear of negative evaluation and social identity concerns. While this study increased understanding of the roles and processes by which CSE impacts compulsive buying, it did not test specific CSE domains that might be more meaningfully related to compulsive buying tendencies. Further, compulsive buying that is characterized as abusive and addictive is starkly different from materialistic acquisitive buying that is deliberate, extensive yet controlled (Bose, Burns, & Folse, 2013), and focus of the present study. The current research extends extant literature on the association between contingent self-esteem and materialism. Thus, as will be argued shortly, extrinsic/intrinsic forms of CSE may have a different relationship with buying tendencies and materialism.

As evidenced by previous research (Chang & Arkin, 2002; Garoasdottir et al., 2008; Sheldon & Kasser, 2008; Srivastava et al., 2001), feelings of self-doubt push people to look for fixes in the material world. It is proposed that doubts and/or threats in specific extrinsic domains on which self-esteem is staked will predispose an individual to turn to materialism.

It was expected, that three "extrinsic" contingencies would be relevant to materialism, namely appearance, competition, and social approval due to the proximal relationship these domains seem to have with materialistic lifestyles. For instance, other extrinsic CSE domains (such as academic competence) might have a distal relationship with materialism. It is possible that academic competence/success may be related to materialism indirectly as it may lay the foundation for a good and lucrative career and consequently purchasing power to indulge in materialistic pursuits. However, a more direct consequence of self-esteem deficits owing to academic incompetence would be to put in more effort into one's academic pursuits to relieve oneself from the insecurity. For example, individuals who have their self-esteem dependent upon academic competence should essentially achieve academic excellence in order to feel worthy rather than develop materialistic orientations. Further, previous researchers have held the view that academic self-esteem is theoretically independent of social and public self-consciousness (Heatherton & Polivy, 1991). Levy (2012) showed that materialism increased among participants who were exposed to a social threat but not when exposed to an academic performance threat. Thus, as long as materialism is associated with social status concerns, it is bound to be a natural avenue for those experiencing low worth in social domains.

Therefore, if a person's self-worth is contingent on the socially visible appearance domain (or that he/she experiences insecurity or self-doubt in this area), he/she is more likely to spend more time and resources on grooming, shopping for clothes, or exercising. Existing evidence has regarded appearance-related ideals and materialism as closely connected aspects of consumer culture that cluster together and have similar associations with negative well-being outcomes (Easterbrook, Wright, Dittmar, & Banerjee, 2014). Moreover, appearance contingent self-esteem has been found to be

predictive of financial problems such as credit card debt accumulation (Crocker & Luhtanen, 2003). Thus, materialistic pursuits seem to be an important outlet for appearance contingent individuals.

Similarly, individuals with contingent self-esteem in the competition domain have a general preference for feeling superior to others. Material accomplishments can enable such individuals to achieve that sense of superiority in terms of owning better gadgets, bigger homes, more luxurious cars than others. Indeed, previous research has shown that upward social comparisons encourage materialistic aspirations and fuel contingent self-esteem (Chan & Prendergast 2007; Patrick, Neighbors, & Knee, 2004). It is possible that material acquisitions may provide quick fix emotional highs that help boost one's self-worth in competitive domains (such as sports), at least in the short run. For example, one study found that novice tennis players were more likely to wear branded clothing as compared to the more confident expert players (Braun & Wicklund, 1989). Thus, here too, materialistic pursuits seem to provide a viable avenue to competition contingent individuals to feel worthy.

Another common external contingency of self-esteem that has been reported is approval from others whereby self-esteem may be based on gaining approval and acceptance from generalized others (Crocker et al., 2003). Materialism has been found to be positively associated with fear of social disapproval (Christopher & Schlenker, 2004). Further, status-oriented consumption of materialistic individuals enables them to fit in and/or be seen as a member of a particular social group (Goldsmith & Clark, 2012). In fact, Clark, Zboja, and Goldsmith (2007) found that the more people seek status through consumption, the more likely they are to conform to group norms to pay attention to the opinions of others, and to compare themselves with other consumers. Thus, it seems plausible that material accomplishments help individuals to impress others and thereby gain social acceptance.

Therefore, good appearance, a sense of competition, and social approval may be achieved by a variety of consumer behaviors such as buying clothes, spending on beauty treatments, owning gadgets, and luxury goods or attaining signs of material success.

Conversely, it is expected that intrinsically contingent self-esteem should be incompatible with materialism. This is because people with intrinsic contingent self-esteem are generally more authentic in their relationships, exercise greater self-compassion (in judging their actions and negative evaluations from others), and report higher global self-esteem as compared to those who have their self-esteem dependent on extrinsic domains (Vonk & Smit, 2012). On the other hand, people highly focused on materialistic strivings report fakeness in relating with others (Khanna & Kasser, 2001), are highly self-conscious publicly (Schroeder & Dugal, 1995), experience fear of negative evaluations (Christopher & Schlenker, 2004), and report low global self-esteem (Burroughs & Rindfliesch, 2002).

Thus, while previous studies have established links between overall CSE, upward social comparison, and compulsive buying tendencies and between generalized self-doubt and materialism, no research has linked particular CSE domains to materialistic pursuits or values. The current research thus advances the field by examining the relationship between extrinsic and intrinsic domains of CSE with materialism. Furthermore, it is proposed that only the particular extrinsic domains of appearance, competition, and social approval CSE are related to greater materialism (as compared to intrinsic CSE domains). In light of previous findings and discussions above, specific hypotheses to test the role of three extrinsically oriented CSE domains as predictors of materialism are tested:

H1a: High levels of extrinsically contingent self-esteem in the appearance domain will positively predict materialism.

H1b: High levels of extrinsically contingent self-esteem in the competition domain will positively predict materialism.

H1c: High levels of extrinsically contingent self-esteem in the approval from others domain will positively predict materialism.

Study 1 tests the relationships (H1a, H1b, and H1c) between extrinsic CSE and materialism. Further, in line with the expectation that materialism will show an inverse relationship with intrinsically contingent self-esteem (H2), Study 2 tests this hypothesis through correlational methods. Finally, Study 3 examines the effects of experimental induction of appearance-related contingent self-esteem (H1a) and intrinsically contingent self-esteem (H2) on materialism.

STUDY 1

Method

Participants. The sample for this study consisted of 152 undergraduate students and 79 working adults. Participants were asked to complete a battery of scales through an online survey placed on Qualtrics. Undergraduate students were recruited from the psychology department research participation pool and working adults were recruited through the snowball technique. Participation was voluntary and anonymity of responses was maintained. Approval from the institutional review board was obtained prior to the commencement of the study. Mean age of the participants was 30.4 years (SD = 10.35) and 58.3% were females. The sample comprised 74.7% Chinese, 17.6% Indians, 3.9% Malays, and 3.9% belonged to other races.

Measures. A battery of standard self-report scales with good psychometric properties was administered to

Table 1. Means, SDs, and Inter-Correlations of Materialism and Extrinsic Contingent Self-Esteem Domains (Study 1).

	Mean	SD	A	B	C	D	E
A. Materialism	50.43	10.56	(0.84)				
B. CSE$_{appearance}$	4.64	1.04	0.49**	(0.80)			
C. CSE$_{competition}$	5.12	1.03	0.54**	0.53**	(0.81)		
D. CSE$_{academic\ competence}$	5.1	0.98	0.35**	0.53**	0.63**	(0.83)	
E. CSE$_{social\ approval}$	4.04	1.17	0.33**	0.46**	0.36**	0.33**	(0.79)
F. Age	30.40	10.35	−0.36**	−0.37**	−0.26**	−0.25**	−0.04

Note. $N = 231$, reliability coefficients are given on the diagonal in parenthesis. CSE-contingent self-esteem.

**Correlations are significant at 0.01 level.

the participants, along with some demographic questions. Given below is a summary of the psychological measures employed in the study. Cronbach alphas for all the measures employed in the study appear in Table 1.

Materialistic Values. *The material values scale* (MVS) by Richins and Dawson (1992) is an 18-item scale that assesses the importance attached by individuals to material possessions as a route of happiness, success, and centrality. Sample item would be, "I admire people who own expensive homes, cars, and clothes." Subjects responded on a 5-point Likert scale (1 = disagree strongly, 5 = agree strongly).

Contingent Self-Esteem. The *contingent self-worth scale* (Crocker & Knight, 2005) was used to assess participants' contingency of self-worth in extrinsic domains of appearance, approval from others, academic competence, and competition. Respondents were required to indicate their level of agreement to each of the 25 statements on a 7-point Likert-type scale where 1 = (*strongly disagree*) and 7 = (*strongly agree*). Higher score indicated greater dependency of the self-worth in the particular domain.

Results

Descriptive Analysis with Demographic Factors.
Table 1 shows the intercorrelations between all key variables used in the study for the students and working adults combined data. Majority of the correlations are in the expected direction and are statistically significant. Since the correlation between the constructs was fairly high, multicollinearity checks were conducted. The variance inflation factor (VIF) was calculated and all VIF scores were below 1.57. Myers (1990) suggested that a VIF value of 10 or above should be a cause of concern. Further, all tolerance statistics were well above 0.2 indicating no multicollinearity issues (Menard, 1995). Thus, multicollinearity was not a serious problem in the current analysis. A multivariate analysis of variance for specific demographic variables with key constructs (materialism and extrinsically oriented contingent self-esteem) as dependent variables was conducted. Comparisons between working adults

and student participants yielded a significant multivariate effect, Wilk's lambda $F(4, 226) = 5.46, p < 0.01$. Follow-up univariate tests revealed that with regards to materialism, students tended to be more materialistic $F(1, 229) = 12.98, p < 0.01, \eta_p^2 = 0.05$. Also, students' self-esteem was more contingent on appearance $[F(1, 229) = 9.81, p < 0.01, \eta_p^2 = 0.04]$ and competition $[F(1, 229) = 15.94, p < 0.01, \eta_p^2 = 0.07]$ as compared to working adults. Consequently, working status was used as a covariate in subsequent analyses. Comparisons between males and females also yielded a significant multivariate effect, Wilk's lambda $F(4, 226) = 6.05, p < 0.01$. Follow-up univariate tests revealed that females scored higher on contingent self-esteem for the appearance domain as compared to males $F(1, 229) = 13.87, p < 0.01, \eta_p^2 = 0.06$. Therefore, gender was used as a covariate in analysis pertaining to this CSE domain. Gender had no effect on the endorsement of materialistic values and other extrinsic CSE domains. There were no significant differences between the ethnic groups. Table 2 summarizes the participants' scores on the materialistic values scale and contingent self-esteem based on their demographic characteristics.

Antecedents of Materialism (Testing H1a through H1c). The materialistic values score (MVS) was regressed on the three extrinsic domains of contingent self-esteem. As expected, the results indicated that the three predictors explained 35.4% of the variance ($R^2 = 0.354, F(3, 227) = 41.53, p < 0.001$). The analysis revealed that contingent self-esteem in the appearance domain ($\beta = 0.26, t(225) = 3.95, p < 0.001$) and competition domain ($\beta = 0.37, t(225) = 5.78, p < 0.001$) significantly predicted materialism. However, contingent self-esteem in approval from others domain ($\beta = 0.08, t(225) = 1.31, p = 0.189$) did not predict materialism. Hence, H1a (positively predicting materialism from appearance-related CSE) and H1b (positively predicting materialism from competition-related CSE) were supported but H1c (positively predicting materialism from social approval related CSE) was not supported. Since, academic competence (another extrinsic CSE domain) was positively associated with materialism, it was also tested as an additional predictor and it was found that self-esteem in this domain did not predict materialism ($\beta = -0.08, t(225) = -1.18, p = 0.236$). This finding helped to reiterate the hypotheses

Table 2. Materialism and Extrinsic Contingent Self-Esteem Scores as a Function of Demographic Characteristics (Study1).

Demographic Variable	Materialism		CSE Appearance		CSE Competition		CSE Social Approval	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender								
Male ($N = 93$)	50.57	12.18	4.36[a]	1.12	5.15	1.14	3.91	1.25
Female ($N = 136$)	50.33	9.34	4.84[b]	0.94	5.09	0.95	4.12	1.09
Working status								
Working ($N = 79$)	47.01[a]	10.50	4.35[a]	1.06	4.76[a]	1.14	3.97	1.18
Not working ($N = 152$)	52.17[b]	10.19	4.79[b]	1.01	5.29[b]	0.92	4.07	1.16
Ethnicity								
Chinese ($N = 170$)	51.22	10.08	4.64	1.01	5.16	1.01	4.04	1.15
Malay ($N = 9$)	50.66	6.91	4.97	1.31	4.84	0.92	3.57	4.18
Indian ($N = 41$)	46.58	12.02	4.39	1.07	4.93	1.02	4.06	1.13
Others ($N = 9$)	52.55	13.07	5.37	1.15	5.31	1.14	4.35	1.26

Note: Means within a column for one demographic variable with different subscripts are significantly different from each other at $p < 0.05$. CSE = contingent self-esteem.

that only specific socially visible extrinsic CSE domains predict materialism.

Study 1 Brief Discussion

Study 1 lent empirical support to the expectation about the role that contingent self-esteem in extrinsic domains like appearance and competition play in the endorsement of materialistic values.

This study has shown empirically, for the first time, that self-esteem that is dependent upon looking physically good and out-doing others in the face of competition sets the foreground for the development of materialistic values. However, the cross-sectional nature of the study warranted experimental investigation of the relationships. Also, intrinsic contingencies were not tested in this study. Therefore, the second study examined how intrinsic contingencies of self-worth relate to materialism.

STUDY 2

In Study 1, it was found that extrinsic contingencies of self-esteem are positively related to materialism. Next, it was proposed to test if intrinsic contingencies would relate negatively to materialism. To this end, Study 2 was conducted to test the following hypotheses:

H2: Intrinsic contingencies of self-esteem will negatively predict materialism.

Method

Participants. Participants were 206 university students (males = 79, females = 127) who completed a battery of scales through an online survey and were recruited from the psychology department research participation pool. Participation was voluntary and anonymity of responses was maintained. Mean age of the sample was 21.2 years (SD = 1.71), age range = 18–27 years. Regarding ethnicity, 176 of the subjects were Chinese, 11 were Malay, 7 were Indian, 2 were Eurasians, and 10 belonged to other races. Institutional Review Board (IRB) approval was obtained prior to commencement of the study.

Measures. The same self-report measure used in Study 1 was employed in this study to assess participants on materialism. Cronbach alpha for the scale appears in Table 3.

Intrinsic Contingencies of Self-Worth. The eight items from the scale developed by Vonk and Smit (2012) was used to assess the extent to which intrinsic contingencies are important to the individual. Sample items include, "My self-esteem suffers when I'm being untrue to myself," "I feel worthy when I take out time for myself," and "I feel worthy when I discover a new side of myself." Respondents indicate their agreement on these statements on the 7- point Likert-type scale where 1 = strongly disagree and 7 = strongly agree.

Results

Correlational and Regression Analyses. Table 3 reports the correlations between the intrinsic contingency scale and materialism. Additionally, the results replicate findings from Study 1 regarding the positive association between extrinsic CSE and materialism. Specifically, intrinsic contingencies were negatively related to materialistic values and when MVS was regressed on intrinsic contingent self-worth (ICSW), as expected, the results indicated that ICSW explained 2.9% of the variance ($R^2 = 0.029$, $F(1, 204) = 6.13$, $p = 0.014$) in MVS. The analysis revealed that intrinsically contingent self-esteem ($\beta = -0.17$, $t(205) = -2.47$,

Table 3. Means, SDs and Intercorrelations of Key Variables (Study 2).

	Mean	SD	A	B	C	D	E
A. Materialism	51.03	10.78	(0.85)				
B. CSE$_{intrinsic}$	4.59	0.82	−0.17*	(0.81)			
C. CSE$_{appearance}$	4.99	0.99	0.46**	−0.02	(0.81)		
D. CSE$_{competition}$	5.35	0.88	0.55**	−0.13*	0.51**	(0.77)	
E. CSE$_{social\ approval}$	4.19	1.16	0.33**	−0.18**	0.47**	0.34**	(0.79)

Note: $N = 206$, reliability coefficients are given on the diagonal in parenthesis. CSE = contingent self-esteem.
*Correlations are significant at 0.05 level
**Correlations are significant at 0.01 level.

$p = 0.014$) negatively predicts materialism. However, the predictive strength on intrinsic CSE on materialism is low given the small amount of variance explained by it. Hence, H2 (predicting materialism negatively from intrinsic contingencies) was supported.

Study 2 Brief Discussion

Study 2 lents empirical support to the idea that intrinsic contingencies negatively predict materialism. Therefore, if extrinsically oriented self-esteem sets the stage for materialism, intrinsically oriented self-esteem should set the stage for nonmaterialistic outcomes. For instance, consider an individual whose self-esteem depends upon being true to oneself, upon personal development, and growth. For such an individual, putting on a mask in social interactions, making upward social comparisons and being fearful of negative social evaluations would be quite difficult. Instead, he/she should have a natural inclination toward forming meaningful bonds with others, exercise authenticity in everyday life situations, and accumulate a wealth of experiences rather than material artifacts.

STUDY 3

The goal of the third experimental study was to provide a more explicit test of the correlational relationships found in Studies 1 and 2. While the regression results support the idea that extrinsic CSE is a possible precursor of materialism, it might be the case that prolonged engagement with materialistic pursuits fosters self-esteem that is contingent upon domains that are closely associated with materialism. Thus, in Study 3, an experiment was designed that manipulated two forms of contingent self-esteem and observed the effects of the manipulations on implicit as well as self-reported materialism. In accordance with H1a, this study employed an appearance threat manipulation and expected that the threat to an extrinsic (appearance) domain of contingent self-esteem should heighten focus on materialistic dispositions and increase salience of materialistic content. Appearance-related CSE was used as an exemplar of an extrinsic domain of contingent self-esteem in this study as this domain had been successfully manipulated in previous research (Park & Maner, 2009).

Further, as outlined in H2, an intrinsic contingent self-esteem induction was designed and it was expected that the induction would lower salience of materialistic content as well as dispositional materialism.

Method

Pilot Tests. Since social desirability concerns have generally been found to be prevalent in materialism research (Mick, 1996), an implicit measure of materialism that could be used in conjunction with the self-report measure was developed for this study. A pilot test was run in order to ensure that the choice of the dependent variable measure was valid and reliable. Forty-six undergraduate students were asked to rate the pleasantness of a picture set that included 17 luxury goods pictures and 17 natural landscape pictures. The assumption was that higher preference for the luxury good pictures could serve as the situationally activated materialism measure. The use of picture sets to activate materialistic mindsets has been successfully employed in a series of experiments (Bauer, Wilkie, Kim, & Bodenhausen, 2012). These researchers proposed that exposure to consumer cues inherent in pictures of luxury products are analogous to the everyday triggers of desirable commodities that people experience in urban societies. In fact, they showed that exposure to such consumer cues can have a number of psychological consequences such as lower preference for social contact and higher negative affect and competitiveness. At first, the general valence of both sets of pictures was compared and it was found that there were no significant differences in the pleasantness ratings ascribed to the luxury good pictures ($M = 1.69$, SD $= 0.41$) and natural scenery pictures ($M = 1.71$, SD $= 0.42$) by the participants, $t(45) = -1.08$, $p = 0.283$. This finding was important because if participants in the main study gave more favorable ratings to the luxury goods pictures, it would be safe to assume that the ratings were a result of the manipulation procedure and not due to pre-existing differences in general valence of the two sets of pictures.

Further, in order to confirm that viewing/rating pictures with materialistic content leads to increased attunement to materialism-related thoughts and response tendencies, a second pilot test was conducted using the lexical decision task (Meyer & Schvaneveldt,

1971). Thirty-three undergraduate students were assigned to rate either luxury goods pictures or natural scenes pictures as in the first pilot procedure. Then, the lexical decision task was used as an implicit measure of the salience of materialistic concerns among the participants and this task was introduced to them as a word recognition task. Participants were asked to decide if the string of letters that appeared on the computer screen was a valid English word or not. If the word was genuine, they were instructed to press the "I" key on the keyboard and if they thought that it was a nonword, they were asked to press the "E" key. Five target words and five neutral words were identified through a two-step pretesting procedure. First, the experimenters brainstormed five words related to materialism based on its definitional characteristics outlined by previous researchers as well as five neutral words that were not related to materialism. Second, 18 undergraduate students were asked to rate the pleasantness of both sets of words and choose from a set of additional 10 words, those that reminded them of the word in question. For instance, if the target word was luxury, students indicated whether the word luxury reminded them of success, fame, good, male, female, etc. The chosen target words were *luxury*, *status*, *impressive*, *expensive*, and *branded*. The target ($M = 11.94$, SD $= 1.55$) and nontarget ($M = 12.83$, SD $= 1.75$) words did not differ from each other in terms of valence and were rated as equally pleasant, $t(17) = -1.36$, $p = 0.190$. It was expected that the reaction time of participants who rated the luxury goods images would be faster as compared to those who were shown natural scenery pictures for materialism-related target words. Results indicated that participants who were exposed to the luxury good images had faster reaction times to the target words ($M = 270.89$ milliseconds, SD $= 67.06$) than those who were exposed to natural scenery images ($M = 782.00$, SD $= 697.77$), $t(31) = -3.1$, $p = 0.004$. Therefore, participants were faster in recognizing materialism-related words after being exposed to consumer cues via pictures of luxury goods as compared to when they viewed pictures of natural scenery. Thus, the findings of the pilot test supported the validity of the implicit measure of situationally activated materialism.

Manipulation Check. In order to ensure that the manipulation activated contingent self-esteem in appearance and intrinsic domains, manipulation checks were carried out prior to the main study. With respect to the manipulation of appearance contingent self-esteem, procedures used by Park and Maner (2009) were replicated. Participants were asked to reflect about one aspect of their physical appearance that they felt insecure about and then write a brief essay about it. Along the same lines, an intrinsic self-worth condition was developed whereby participants were asked to reflect upon a situation or event in their lives when they behaved authentically and in accordance with their deepest core values. Seventy college students were randomly assigned to either the appearance threat condition or intrinsic self-worth condition. After completing the reflection, participants completed five items from the contingent self-worth scale (Crocker & Knight, 2005) to assess the salience of appearance-related contingencies. Additionally, an eight-item measure for intrinsic contingencies of self-worth developed by Vonk and Smit (2012) was used. It was found that the two groups differed significantly from each other on the appearance contingency measure, $t(68) = 2.12$, $p = 0.038$, such that participants in the appearance contingency condition reported higher appearance contingency ($M = 5.26$, SD $= 0.96$) than the intrinsic self-worth participants ($M = 4.81$, SD $= 0.81$). However, even though participants in the intrinsic self-worth condition had higher scores on the intrinsic contingency measure ($M = 5.22$, SD $= 0.77$) than the appearance contingent participants ($M = 5.07$, SD $= 0.61$), the two groups did not differ from each other significantly, $t(68) = -0.86$, $p = 0.389$. Thus, while there was confidence that the appearance threat manipulation increased the salience of appearance CSE in the participants, additional evidence to support the validity of the intrinsic self-worth induction was needed. It was suspected that this might be due to the fact that people generally respond in socially desirable ways in response to socially sensitive questions, especially those related to their self-esteem (King & Brunner, 2000; Ragozzino, 2009). Additionally, it is possible that people find it difficult to disagree with statements (such as those in the intrinsic contingency scale) that show them in a positive light. Fortunately, participants were also asked to evaluate the reflection exercise (the manipulation procedure) on whether it was a positive or negative experience on the whole, as well as how it made them feel about themselves. Participants rated the extent to which the incident/event/aspect they wrote about was positive or negative on a 7-point Likert-type scale ranging from 1 (not at all positive/negative) to 7 (very positive/negative). Likewise, they also indicated how good/bad this reflection made them feel about themselves on a 7-point Likert-type scale ranging from 1 (very bad about myself) to 7 (very good about myself). Lower scores on this measure meant that participants felt worse about themselves. Expectantly, results confirmed that the intrinsic self-worth induction worked as intended, as participants in the intrinsic self-worth condition felt significantly better about themselves ($M = 4.85$, SD $= 1.51$) than participants in the appearance threat condition ($M = 3.71$, SD $= 1.59$), $t(68) = -3.04$, $p = 0.003$. Further, those in the intrinsic self-worth condition felt that the event they wrote about was more positive ($M = 4.05$, SD $= 1.98$) as compared to participants in the appearance threat condition ($M = 2.77$, SD $= 1.41$), $t(68) = -3.04$, $p = 0.003$. Finally, participants in the appearance threat condition felt that the incident they wrote about was more negative ($M = 4.74$, SD $= 1.49$) as compared to those in the intrinsic self-worth condition ($M = 3.71$, SD $= 1.97$), $t(68) = 2.44$, $p = 0.017$. Thus, the intrinsic self-worth induction was somewhat successful.

Main Study

Participants. Participants were 105 university students (males = 36, females = 69) who were recruited from the psychology department research participation pool. Participation was voluntary and anonymity of responses was maintained. Mean age of the sample was 20.89 years (SD = 1.25), age range = 18–25 years. IRB approval was obtained prior to commencement of the study.

Design. A between-subjects design was employed in which participants were randomly assigned to either the appearance threat condition, the intrinsic self-worth condition, or to a neutral control condition and completed outcome measures presented on an online questionnaire format.

Procedures and Materials. As adapted from Park and Maner (2009), participants were ostensibly invited to participate in a life reflection study where they were asked to reflect upon and write about an aspect of their life. There were seated in private cubicles with a computer screen in front of them. In the appearance contingent self-esteem condition, participants read the following instructions on their screens:

"We all have parts of our body or physical appearance that we are dissatisfied about or feel insecure about. Take a moment to think about one such aspect and write a brief essay about it describing why you feel this way, how these feelings developed and how they have affected you. This is a free writing exercise so there is no time limit. Feel free to stop whenever you wish."

In the intrinsic self-worth condition, participants were given the following instructions:

"We all have an internal need to develop and grow as individuals, to be true to oneself and discover new sides of ourselves. Take a moment to think about one such situation where your self-worth or identity depended upon acting in ways that satisfied your inner feelings or acting in ways that were in line with your core values. Write a brief essay about it. This is a free writing exercise so there is no time limit. Feel free to stop whenever you wish."

In the neutral control condition, participants received the following instructions:

"If you look around yourself, there are many things in this room. Take a moment to think about these things and write a brief essay about them. This is a free writing exercise so there is no time limit. Feel free to stop whenever you wish."

Following this, they were asked to rate the pleasantness of visual stimuli and answer some survey questions, supposedly, for a well-being study. The visual stimuli to be rated were actually the implicit-dependent measure to assess the salience of materialistic mindsets among the participants. It included 17 pictures of either luxury consumer goods such as electronics, cars, clothing, accessories, or 17 pictures of natural landscapes devoid of any consumer products.

As part of the well-being segment of the study, participants responded to questionnaires that included the terminal materialism scale (Scott, 2009) and two measures of state well-being. However, the well-being data is not reported in this study as it was collected for another research study undertaken by the authors. Thereafter, the participants were debriefed and dismissed.

Results

Planned Contrasts. To test the hypothesis that participants in the appearance contingent condition would report higher materialistic inclinations than those in the other two conditions, three planned contrasts were conducted and were tested for self-reported materialism as well as the implicit measure of activated materialism (operationalized as more favorable preference ratings for materialistic pictorial content). With respect to self-reported materialism, there was no significant difference between the three groups, $F_{(2,102)} = 1.43$, $p = 0.243$ and therefore planned contrasts could not be conducted. However, when the implicit measure of materialism was used as the dependent variable, one-way analysis of variance revealed a significant difference between groups, $F_{(2,102)} = 3.94$, $p = 0.022$. Thus, a test of how the groups differed from each other based on the *a priori* hypotheses was conducted. In the first contrast, participants in the appearance contingent condition ($M = 3.19$, SD = 0.36) were compared with those in the intrinsic self-worth condition ($M = 2.94$, SD = 0.60) and this contrast was significant, with $t(102) = 2.17, p = 0.032$, indicating that appearance contingent participants reported more favorable ratings for materialistic pictures as compared to the intrinsic self-worth participants. The second contrast which compared the appearance contingent participants to neutral control condition participants was not significant, $t(102) = -0.49$, $p = 0.62$. Finally, in the third contrast, the intrinsic self-worth condition was compared with the neutral condition and found a significant result such that participants in the neutral control condition ($M = 3.25$, SD = 0.44) reported higher preference ratings for materialistic pictures as compared to participants in the intrinsic self-worth condition ($M = 2.94$, SD = 0.60), $t(102) = -2.62, p = 0.01$.

GENERAL DISCUSSION

The present studies set out to examine two main research questions. First, this research investigated extrinsically oriented contingent self-esteem as an antecedent of materialism (Study 1). Second, it sought to explore how intrinsically oriented contingent self-esteem is related to materialism (Study 2). Finally, it

tested the findings of the previous two studies within an experimental paradigm (Study 3).

Study 1 lent empirical evidence to the idea that contingent self-esteem that is staked upon external contingencies is a potential precursor of materialistic values. Specifically, the results showed that CSE in the appearance domain was the strongest predictor of materialistic values followed by CSE in the competition domain. Although, contingent self-esteem in the approval from others domain was not a significant predictor of materialism as hypothesized, caution needs to be exercised before dismissing its role completely as CSE in the social approval domain did have a significant positive correlation with materialism. With regards to appearance and competition contingencies, when an individual bases his/her sense of worth on having an appealing appearance, it is quite plausible that such an individual will be more likely to make efforts toward enhancing his/her appearance via several consumer behaviors such as shopping for clothes, accessories, spending on grooming treatments, etc. If an individual's sense of worth is dependent upon how he/she looks, it is quite certain that they will experience a high degree of public self-consciousness (Neff & Vonk, 2009). Interestingly, tactical use of clothing for defining oneself has been found to have a consistent and pervasive positive correlation with public self-consciousness. Materialistic pursuits, especially buying clothes and accessories (visible signs of enhancing appearance) may prove to be the most be natural way for such individuals to experience some relief from any doubt regarding their appearance. Similarly, when self-esteem is dependent on competing with others, then individuals are more likely to be dissatisfied with their current social standing and would be in perpetual activity to achieve that dominance over others. Previous research has shown that materialistic individuals tend to engage in frequent social comparisons (Chan & Prendergast, 2007; Richins, 1991). It is reasonable to expect that this tendency to compare one's social standing with others can translate into a habitual tendency to compete with others. In fact, Roberts and Pirog (2004) asserted that materialistic pursuits are a competitive and comparative process. Materialistic pursuits such as acquiring luxury goods like cars, gadgets, homes (visible signs of social status) may be a very obvious way for such individuals to experience comfort from doubt regarding their social position. Thus, materialism seems to be a possible avenue for people with extrinsically oriented CSE to achieve possible gains in appearance, social status, and success in competition with others. SDT provides a possible explanation in support of the idea that extrinsic CSE makes people highly susceptible to endorsing materialism. According to SDT, self-esteem that is staked on such extrinsic domains is highly vulnerable and unstable. It represents introjected regulation whereby one is ego involved in an outcome and meeting externally evaluated criteria are a route to enhancing feelings of worth (Deci & Ryan, 2004, p. 17). This implies that success in the external domain becomes the instrument

for such individuals to experience self-worth. Materialistic pursuits (such as buying clothes, designer accessories, gadgets, cars, etc.) have considerable symbolic communicational power (Dittmar, 1992). This symbolic expressive function of material possessions may help to temporarily alleviate self-esteem deficits in appearance and competition domains.

Thus, these findings theoretically advance previous work on the antecedents of materialism such that extrinsically contingent self-esteem in specific and commonly encountered domains is considered as precursors of materialism. It is suggested that these specific CSE domains emanate from the psychological antecedents of materialism outlined in previous research, for example, insecurity (Dittmar, 2008; Park & John, 2011) and self-doubt (Chang & Arkin, 2002). To be more explicit, if an individual is experiencing insecurity, then he/she experiences a disturbance to his/her self-view and self-worth. However, these disturbances may be located at specific domains of an individual's life. The results of Studies 1 and 3 are suggestive that appearance and competition might be those domains that are specifically relevant for the development of materialistic mindsets. It seems that people feel that material wealth will provide the needed boosts in these self-esteem domains.

Study 2 attempted to expand on the findings of Study 1 by examining how intrinsically contingent self-esteem relates to materialism. The regression results showed that intrinsic contingencies of self-worth explain a small yet significant portion of the variance in materialistic values. The negative association between intrinsic contingencies and materialism provides an indication of how basing one's sense of worth on self-development, autonomy, and living authentically might be contradictory to the pursuance of materialism. Self-esteem that is contingent upon being true to oneself, living autonomously, and experiencing personal development should work toward inhibiting the likelihood of endorsing materialistic aspirations due to the inherent incompatibility of materialistic values with such self-actualizing tendencies. In this way, materialism may not act as an outlet for individuals driven by intrinsic contingencies of self-worth. This could be because such individuals are unlikely to be predisposed to searching for identity fixes in the material world, which is quite likely for their extrinsically contingent self-esteem counterparts. Any self-esteem deficits experienced in intrinsic domains may be effectively removed by acting in ways that in line with one's core values rather than going on a shopping spree.

More concrete conclusions regarding the effects found in Studies 1 and 2 could be drawn when experimental procedures were used to manipulate two different domains of contingent self-esteem and observed the effects of these short-term manipulations on salience of materialistic inclinations. Thus, in Study 3, it was found that appearance contingent participants reported significantly higher preference ratings for materialistic pictorial content as compared to intrinsic

self-worth contingency participants. This finding was important because it supports a possible causal relationship between an extrinsic CSE domain (as an antecedent of materialistic inclinations) and materialism. Simultaneously, it was seen that when people focused on intrinsic contingencies of self-worth, they were less likely to endorse liking for materialistic content. The results were not significant with respect to dispositional materialism, however this is not surprising as short-term inductions (such as the one used in the current experiment) that result in temporary fluctuations in self-esteem-related thoughts and feelings may not affect chronic tendencies toward materialism. Longitudinal or intervention-based studies might be able to document the effects of such manipulation/inductions on trait levels of outcome measures. Nevertheless, this study was the first to show experimentally that contingent self-esteem can be manipulated and anchored to extrinsic or intrinsic domains. The malleability of contingent self-esteem, as evidenced by this study, has valuable practical implications. For example, researchers and practitioners interested in designing interventions to reduce materialism may benefit greatly by incorporating stable self-esteem elements in their programs. Cultivating intrinsic forms of contingent self-esteem and a guided emphasis on loosening the hold of specific extrinsic CSE domains may enhance the overall effectiveness of such intervention programs.

A second and equally noteworthy finding of Study 3 is that when individuals focus on intrinsic contingencies as compared to doing a mundane neutral activity, they are less likely to favor materialism. This finding suggests that the omnipresent materialistic messages prevalent in modern urban societies are placing considerable pressure on unsuspecting individuals to affirm materialistic inclinations. The mainstay of materialistic messages may be regarded, in a sense, as a mundane accompaniment of contemporary consumer culture. Thus, a gentle reminder of an individual's core values and inner strengths may successfully shift one's focus away from materialism to more meaningful pursuits (as evidenced by a significant planned contrast between the neutral control and intrinsic self-worth condition), and eventually enhance an individual's psychological well-being.

To summarize, an important contribution of these studies lies in providing support for the role of extrinsic contingent self-esteem in specific domains as an antecedent of materialistic values. Moreover, this research provides parallel evidence to support the negative relationship of intrinsic contingencies with materialism. These theoretical contributions are valuable because earlier studies on materialism that adopted the self-determination perspective shed light on how materialism is antagonistic to overall basic psychological needs satisfaction. None of these studies explored the precursors of materialistic aspirations from a self-determination perspective. The current study explored a construct often discussed within SDT, that is, contingent self-esteem (Deci & Ryan, 1995) as

both a potential precursor and possible deterrent to materialism depending upon whether it is extrinsically or intrinsically oriented, respectively. This understanding advances the field of materialism research as it shows specific self-esteem deficit domains under which materialism flourishes and those under which it stays in check. In other words, this research suggests that people seeking to overcome materialistic pressures may be well advised to shift focus away from appearance and status enhancing concerns to more autonomy driven self-development and authentic relationship building. Further, identifying antecedents of a construct helps to build the nomological net for the relevant construct, which eventually aids in scale development and establishing validity of the construct (Mowen & Voss, 2008). It may be beneficial to reconsider existing measures of materialism and develop newer, more refined ones that capture antecedent factors identified in the current research such as extrinsically oriented contingent self-esteem. Additionally, a novel implicit measurement of materialism was devised that may be used effectively in future studies to help overcome the social desirability concerns that often plague materialism research.

Limitations and Concluding Remarks

Although the current study provides empirical evidence to validate the claims of SDT in relating CSE and materialism, certain caveats need to be addressed. In all the studies, the sample was quite homogenously drawn from an undergraduate student sample, limiting the generalizability of these results. It would be worthwhile to test these hypotheses among people from different socioeconomic strata or among people at different stages of life as prior studies have indicated that economic deprivation leads to an excessive focus on material pursuits (Abramson & Inglehart, 1995; Cohen & Cohen, 1996). In Study 3, only a single extrinsic CSE domain, that is, appearance was manipulated. Future studies may devise effective manipulation procedures for other extrinsic domains such as competition and social approval in order to provide a more comprehensive picture of other extrinsic CSE domains that predispose an individual to developing materialism. Further, previous research has suggested that low self-esteem produces stress among individuals, which in turn gets temporarily relieved by materialistic pursuits (Ruvio, Somer, & Rindfleisch, 2014). Therefore, future studies may explore stress as a mediating mechanism between extrinsically contingent self-esteem and materialism to allow for a deeper understanding of the self-esteem and materialism link. Another possible methodological advance in the field could be achieved by developing implicit measures of contingent self-esteem so that more authentic, unbiased, and accurate measure of people's self-esteem may be gathered.

In conclusion, it was shown that contingent self-esteem in extrinsic domains is associated with higher materialism. However, it is equally encouraging to

know that when self-esteem is staked upon being true to oneself, on self-growth, and autonomy, the hold of materialistic messages may begin to loosen and consequently, well-being might be enhanced. The current research suggests that vulnerability to developing materialism may indeed be related to basing one's self-esteem on external rather than internal sources. Moreover, it provided the first experimental confirmation of these relationships, thus adding value to the existing literature stream surrounding self-esteem and materialism.

REFERENCES

Abramson, P. R., & Ingelhart, R. (1995). Value change in global perspective. Ann Arbor, MI: University of Michigan Press.

Achenreiner, G. B., & John, D. R. (2003). The meaning of brand names to children: A developmental investigation. Journal of Consumer Psychology, 13, 205–219. doi:10.1207/S15327663JCP1303_03

Banerjee, R., & Dittmar, H. (2008). Individual differences in children's materialism: The role of peer relations. Personality and Social Psychology Bulletin, 34, 17–31. doi:10.1177/0146167207309196

Bauer, M. A., Wilkie, J. B., Kim, J. K., & Bodenhausen, G. V. (2012). Cuing consumerism: Situational materialism undermines personal and social well-being. Psychological Science, 23, 517–523. doi:10.1177/0956797611429579

Bose, M., Burns, A. C., & Garretson Folse, J. A. (2013). "My fifty shoes are all different!" Exploring, defining, and characterizing acquisitive buying. Psychology & Marketing, 30, 614–631. doi:10.1002/mar.20632

Braun, O. L., & Wicklund, R. A. (1989). Psychological antecedents of conspicuous consumption. Journal of Economic Psychology, 10, 161–187. doi:10.1016/0167-4870(89)90018-4

Burroughs, J. E., & Rindfleisch, A. (2002). Materialism and well-being: A conflicting values perspective. Journal of Consumer Research, 29, 348–370. doi:10.1086/344429

Chan, K., & Prendergast, G. (2007). Materialism and social comparison among adolescents. Social Behavior and Personality, 35, 213–228. doi:10.2224/sbp.2007.35.2.213

Chang, L., & Arkin, R. M. (2002). Materialism as an attempt to cope with uncertainty. Psychology & Marketing, 19, 389–406. doi:10.1002/mar.10016

Chaplin, L. N., & John, D. R. (2007). Growing up in a material world: Age differences in materialism in children and adolescents. Journal of Consumer Research, 34, 480–493. doi:10.1086/518546

Christopher, A. N., & Schlenker, B. R. (2004). Materialism and affect: The role of self-presentational concerns. Journal of Social and Clinical Psychology, 23, 260–272. doi:10.1521/jscp.23.2.260.31022

Clark, R. A., Zboja, J. J., & Goldsmith, R. E. (2007). Status consumption and role-relaxed consumption: A tale of two retail consumers. Journal of Retailing and Consumer Services, 14, 45–59.

Cohen, P., & Cohen, J. (1996). Life values and adolescent mental health. Mahwah, NJ: Erlbaum.

Crocker, J., & Knight, K. M. (2005). Contingencies of self-worth. Current Directions in Psychological Science, 14, 200–203. doi:10.1111/j.0963-7214.2005.00364.x

Crocker, J., & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social and financial problems in college students. Personality and Social Psychology Bulletin, 29, 701–712. doi:10.1177/0146167203029006003

Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. Psychological Bulletin, 130, 392–414. doi:10.1037/0033-2909.130.3.392

Deci, E. L., & Ryan, R. M. (1995). Human autonomy: The basis for true self-esteem. In M. Kemis (Ed.), Efficacy, agency, and self-esteem (pp. 31–49). New York: Plenum.

Deci, E. L., & Ryan, R. M. (2004). Handbook of self-determination research. Rochester, NY: University of Rochester Press.

Dittmar, H. (1992). Perceived material wealth and first impressions. British Journal of Social Psychology, 31, 379–391.

Dittmar, H. (2008). To have is to be? Psychological functions of material possessions. In Dittmar, H. (Ed.), Consumer culture, identity and well-being (pp. 25–48). Hove and New York: Psychology Press.

Dittmar, H., Bond, R., Hurst, M., & Kasser, T. (2014). The relationship between materialism and personal well-being: A meta-analysis. Journal of personality and social psychology, 107(5), 879–924. doi: 10.1037/a0037409.

Easterbrook M. J., Wright M. L. Dittmar H., and Banerjee R. (2014). Consumer culture ideals, extrinsic motivations, and well-being in children. European Journal of Social Psychology, 44, 349–359. doi: 10.1002/ejsp.2020

Garoarsdottir, R. B., Jankovic, J. & Dittmar, H. (2008). Is this as good as it gets? Materialistic values and well-being. In Dittmar, H. (Ed.), Consumer culture, identity and well-being (pp. 71–94). Hove and New York: Psychology Press.

Goldsmith, R. E., & Clark, R. A. (2012). Materialism, status consumption, and consumer independence. The Journal of Social Psychology, 152, 43–60. doi:10.1080/00224545.2011.555434

Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. Journal of Personality and Social Psychology, 60(6), 895–910. doi:10.1037/0022-3514.60.6.895

Karabati, S., & Cemalcilar, Z. (2010). Values, materialism, and well-being: A study with Turkish university students. Journal of Economic Psychology, 31, 624–633. doi:10.1016/j.joep.2010.04.007

Kashdan, T. B., & Breen, W. E. (2007). Materialism and diminished well-being: Experiential avoidance as a mediating mechanism. Journal of Social and Clinical Psychology, 26, 521–539. doi:10.1521/jscp.2007.26.5.521

Kasser, T., & Ahuvia, A. (2002). Materialistic values and well-being in business students. European Journal of Social Psychology, 32, 137–146. doi:10.1002/ejsp.85

Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. Developmental Psychology, 31, 907–914. doi:10.1037/0012-1649.31.6.907

Kasser, T., Ryan, R. M., Couchman, C. E., & Sheldon, K. M. (2004). Materialistic values: Their causes and consequences. In T. Kasser & A. D. Kanner (Eds.), Psychology and consumer culture: The struggle for a good life in a materialistic world (pp. 11–28). Washington, DC: American Psychological Association.

Khanna, S., & Kasser, T. (2001). Materialism, objectification, and alienation from a cross-cultural perspective. In Kasser, T. (Ed.), The high price of materialism (pp. 43–59). London: MIT Press.

King, M. F., & Bruner, G. C. (2000)., Social desirability bias: A neglected aspect of validity testing. Psychology & Marketing, 17: 79–103. doi: 10.1002/(SICI)1520-6793(200002)17:2<79::AID-MAR2>3.0.CO;2-0

Levy, E. (2012). The effect of social threats on consumer materialism. Dissertation Abstracts International Section A, 73, 1490.

Menard, S. (1995). Applied logistic regression analysis. Thousand Oaks: Sage University paper series on quantitative applications in the social sciences, 07-106.

Meyer, D. E., & Schvaneveldt, R. W. (1971). Facilitation in recognizing pairs of words: Evidence of a dependence between retrieval operations. Journal of Experimental Psychology, 90, 227–234. doi:10.1037/h0031564

Mick, D. G. (1996). Are studies of dark side variables confounded by socially desirable responding? The case of materialism. Journal of Consumer Research, 23, 106–119. doi:10.1086/209470

Mowen, J. C. & Voss, K. E. (2008). On building better construct measures: Implications of a general hierarchical model. Psychology & Marketing, 25, 485–505. doi:10.1002/mar.20221

Myers, R. (1990). Classical and modern regression with applications (2nd ed.). Boston, MA: Duxbury.

Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. Journal of Personality, 77, 23–50. doi:10.1111/j.1467-6494.2008.00537.x

Nelson, M. R., & McLeod, L. E. (2005). Adolescent brand consciousness and product placements: Awareness, liking and perceived effects on self and others. International Journal of Consumer Studies, 29, 515–528. doi:10.1111/j.1470-6431.2005.00429.x

Park, J. K., & John, D. R. (2011). More than meets the eye: The influence of implicit and explicit self-esteem on materialism. Journal of consumer psychology, 21, 73–87.

Park, L. E., & Maner, J. K. (2009). Does self-threat promote social connection? The role of self-esteem and contingencies of self-worth. Journal of Personality & Social Psychology, 96, 203–217.

Patrick, H., Neighbors, C., & Knee, C. (2004). Appearance-related social comparisons: The role of contingent self-esteem and self-perceptions of attractiveness. Personality and Social Psychology Bulletin, 30, 501–514. doi:10.1177/0146167203261891

Ragozzino, R. L. (2009). A study of social desirability and self-esteem. Poster presented at the 37th Annual Pennsylvania Undergraduate Psychology Conference. Moon Township, PA. Retrieved February 26, 2017, from http://www.drspeg.com/research/2009/socialdesirability.pdf

Reeves, R. A., Baker, G. A., & Truluck, C. S. (2012). Celebrity worship, materialism, compulsive buying, and the empty self. Psychology & Marketing, 29, 674–679. doi:10.1002/mar.20553

Richins, M. L. (1991). Social comparison and the idealized images of advertising. Journal of Consumer Research, 18(1), 71–83. doi:10.1086/209242

Richins, M. L., & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: Scale development and validation. Journal of Consumer Research, 19, 303–316. doi:10.1086/209304

Roberts, J. A., Manolis, C., & Pullig, C. (2014). Contingent self-esteem, self-presentational concerns, and compulsive buying. Psychology & Marketing, 31, 147–160. doi:10.1002/mar.20683

Roberts, J.A. & Pirog III, S.F. (2004). Personal Goals and Their Role in Consumer Behavior: The Case of Compulsive Buying, Journal of Marketing Theory and Practice, 12(3), 61–73. doi:10.1080/10696679.2004.11658525

Ruvio, A., Somer, E., & Rindfleisch, A. (2014). When bad gets worse: The amplifying effect of materialism on traumatic stress and maladaptive consumption. Journal of the Academy of Marketing Science, 42, 90–101. doi:10.1007/s11747-013-0345-6

Schroeder, J. E., & Dugal, S. S. (1995). Psychological correlates of the materialism construct. Journal of Social Behavior & Personality, 10, 243–253.

Scott, K. (2009). Terminal materialism vs. instrumental materialism: Can materialism be beneficial? (Doctoral dissertation, Oklahoma State University).

Sheldon, K. M., & Kasser, T. (2008). Psychological threat and extrinsic goal striving. Motivation and Emotion, 32, 37–45. doi:10.1007/s11031-008-9081-5

Srivastava, A., Locke, E. A., & Bartol, K. M. (2001). Money and subjective well-being: It's not the money, it's the motives. Journal of Personality and Social Psychology, 80, 959–971. doi:10.1037/0022-3514.80.6.959

Vansteenkiste, M., Duriez, B., Simons, J., & Soenens, B. (2006). Materialistic values and well-being among business students: Further evidence of their detrimental effect. Journal of Applied Social Psychology, 36, 2892–2908. doi:10.1111/j.0021-9029.2006.00134.x

Vonk, R., & Smit, H. (2012). Optimal self-esteem is contingent: Intrinsic versus extrinsic and upward versus downward contingencies. European Journal of Personality, 26, 182–193. doi:10.1002/per.817

Webb, D., & Wong, J. (2014). Exploring antecedents of charitable giving and their impact on subjective well-being in Singapore. Social Indicators Research, 117, 65–87. doi:10.1007/s11205-013-0331-x

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