

## Materialism lowers well-being: The mediating role of the need for autonomy – correlational and experimental evidence

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While there is evidence from the self-determination perspective for the mediation of basic needs satisfaction in the materialism–well-being link, no research to date has attempted to examine the relative contribution of the three needs to the mediating effect. Given that the predictive value of psychological needs on well-being depends upon the match between the need and life domains, in two studies we investigate the differential mediating role of all three needs in the negative relationship between materialism and well-being. In study 1, 231 adult participants self-reported their materialistic attitudes, basic needs satisfaction and well-being. In study 2 ( $N = 82$  undergraduates), we experimentally activated materialistic thoughts and examined their effects on need satisfaction and state well-being as compared to a neutral control condition. Study 1 furnished cross-sectional evidence that materialism diminishes well-being through lower satisfaction of the psychological need for autonomy only. Study 2 showed that experimental activation of materialism via short-term exposure to pictorial consumer-cues leads to lower satisfaction of the need for autonomy, which in turn produces higher negative affect among participants. The findings point towards the importance of considering the specific role of the psychological need for autonomy in the materialism–well-being link.

*Key words:* autonomy, consumer-cue, materialism, self-determination theory, well-being.

### Introduction

In the ubiquitous consumer culture of modern day urban societies, acquisition of material goods has come to be associated with social status, financial success and personal accomplishment. The deep penetration of consumerism has instilled a mindset that material acquisitions are a route to attaining fame, identity and happiness. Materialism is defined as a ‘preoccupation with, desire for and emphasis on, material goods and money to the neglect of other matters’ (Garoarsdittor, Jankovic, & Dittmar, 2008). There is a plethora of empirical evidence suggesting that materialism is negatively related to 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). Mental well-being is inextricably tied to the overall health of an individual. Extant literature (Henderson & Knight, 2012; Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2011; Ryan & Deci, 2001) indicates that mental well-being is composed of both hedonic

(subjective appraisal of one’s satisfaction with the conditions of one’s life) and eudaimonic elements (individual’s self-actualizing tendencies). Typically, hedonic well-being is measured by indicators such as positive and negative emotions and life satisfaction. On the other hand, typical indicators of eudaimonic well-being include self-actualization, vitality, self-acceptance, purpose in life and personal growth. Insofar as materialism diminishes both these elements of well-being, it represents itself as a socio-cultural condition that hampers mental health. It is possible that materialistic values are differentially related to these two aspects of well-being. For instance, Joshanloo and Ghaedi (2009) show that only two values from Schwartz’s (1992) 10 basic value types predicted hedonic well-being while seven values predicted eudaimonic well-being. Incidentally, few materialism studies have measured both aspects of well-being (Chen, Yao, & Yan, 2014; Kashdan & Breen, 2007; Kasser & Ahuvia, 2002). Thus, it is important to explore the relationship of materialism with both the hedonic and eudaimonic aspects of well-being.

Recently, researchers have tried to examine the materialism–well-being link through the self-determination perspective. Self-determination theory (SDT) identifies three psychological needs (autonomy, competence and relatedness) that foster positive processes and play an instrumental role in general well-being (Deci & Ryan, 2000). SDT defines autonomy as the extent to which actions are freely chosen devoid of any external pressure. Competence is defined as the need to have an effect on the

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environment and attain valued outcomes within it (Deci & Ryan, 2000). Finally, the need for relatedness is the need to belong, to connect with others, to be loved and cared for.

Three recent studies (Chen et al., 2014; Kasser et al., 2014; Tsang, Carpenter, Roberts, Frisch, & Carlisle, 2014) document that basic psychological needs mediate the materialism–well-being link. For instance, Kasser et al. (2014) conducted a 2-year longitudinal study with college students and found that, as individuals became relatively less (or more) oriented towards materialistic aspirations over a 2-year period, they reported increased (or decreased) satisfaction of their psychological needs, and this increase (or decrease) in need satisfaction fully accounted for the reported increase (or decrease) in well-being. The other studies also found cross-sectional evidence for the mediated path. Specifically, Chen et al., (2014) found that psychological needs satisfaction fully mediated the materialism and psychological well-being link in a sample of Chinese college students. The authors recommend that future research should first verify the differential effects of the three psychological needs in the materialism–well-being link. Secondly, they made special recommendations to consider the need for autonomy in collectivistic cultures, as these cultures with their explicit focus on face consciousness may be particularly detrimental to personal autonomy (Zhang & Cao, 2010). By examining the differential effects of each of the SDT basic needs in the materialism–well-being link on a Singapore sample, our research directly addresses these two recommendations.

Thus, these studies examined overall needs satisfaction as a mediating mechanism, rather than looking at the individual contribution of each basic need. In addition, all of the previous studies furnish correlational evidence and thus direction of the relationships could not be ascertained. SDT researchers have found merit in exploring the unique contribution of each of the needs in need-relevant domains. For instance, La Guardia, Ryan, Couchman, and Deci (2000) found that the need for relatedness was the most important predictor of attachment quality and relationship commitment among interaction partners as compared to autonomy and competence. Recent experimental evidence shows that participants in a relatedness prime condition displayed the highest intentions to volunteer compared to those in autonomy or competence prime conditions (Pavey, Greitemeyer, & Sparks, 2011). Similarly, Deci et al. (2001) show a strong relationship between satisfaction of the need for competence and job engagement. Therefore, it seems that some domains are more suitable for the expression and satisfaction of specific psychological needs. Moreover, Sheldon and Hilpert (2012) suggest that combining satisfaction with each of the three needs into a single general measure may lead to overlooking important distinctive patterns of effects that each of the needs may have.

We propose that it is the need for autonomy that is most strongly affected by materialism. Specifically, when an

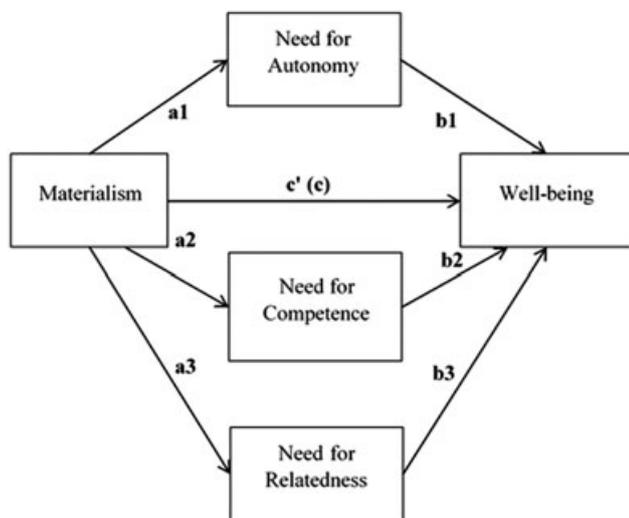
individual embarks upon accumulating wealth and achieving societal standards of status and material accomplishment, he/she essentially acts in ways that are largely governed by forces from outside the individual. Upward social comparisons are positively associated with materialistic aspirations (Chan & Prendergast, 2008; Richins, 1991). Frequent upward social comparisons place individuals on a ‘hedonic treadmill’ whereby larger and frequent purchases become necessary in order to satisfy the individual’s competitive appetite through acquisition (Dunn, Gilbert, & Wilson, 2011). Such a person is unable to act in wilful, self-determined ways due to the experience of consistent external pressures to match up to societal standards of wealth, fame and success. Insofar as materialistic aspirations are clearly extrinsic and contingent pursuits, representing an external incentive for behaviour (Kasser & Ryan, 1996), they diminish the sense of autonomy and actualization (Ryan, 1993) that is considered so crucial for psychological well-being by SDT. Materialism impedes the need to feel autonomous by taking individuals closer to externally regulated wants (fame, status, appearance) and farther away from their core, true needs of self-expression and authenticity (James, 2007).

On the other hand, it is possible that non-self-determined/ extrinsic goals are effective in satisfying the need for competence and relatedness (Moneta, 2014). An individual who places importance on materialistic goals may not necessarily feel incompetent since the attainment of material goals does provide the individual with emotional highs associated with growing financial prosperity. Although, these emotional highs are tenuous as they set up the individual to achieve the next material milestone, at least temporarily the individual experiences a sense of effectance. For instance, Guevarra and Howell (2015) support this idea because they found that experiential products such as books, sporting goods and musical instruments satisfy the need for competence as they afford an individual with the opportunity to practice and/or hone a skill. In the same study, it was found that purchase of life experiences such as eating out, going to a concert and travelling satisfy the need for relatedness. Thus, a materialistic individual’s need for relatedness may also not be readily compromised because such experiential purchases foster social relationships as most of these activities are undertaken with other people (Jansson-Boyd, 2011). Moreover, the accompaniments of material success, that is, fame and popularity, may make an individual believe that he/she has garnered adequate social support.

Therefore, we reason that the need for autonomy would be the most relevant mediator in the negative relationship between materialism and well-being. We aim to tease apart the relative contribution by each of the three basic needs of autonomy, relatedness and competence to the mediating effect. Figure 1 illustrates the conceptual diagram of the multiple mediator model specified.

However, regarding the effects of materialism on well-being, we specifically hypothesize that lower satisfaction with the need for autonomy mediates the negative relationship between materialism and well-being. As no previous studies have attempted to examine the specific contribution of the three psychological needs in the materialism–well-being link, the present studies set out to fill this research gap and directly address the research agenda set forth by Chen et al. (2014) and extend it by furnishing cross-sectional as well as experimental evidence. In study 1, we present correlational evidence for the mediated paths and in study 2 we experimentally induce materialism and examine its effects on need satisfaction and well-being.

We employed different measures of well-being in the two studies. SDT research has typically supplemented hedonic measures with assessments of self-actualization and vitality (Ryan & Deci, 2001). SDT researchers conceive of eudaimonia as comprising of living well and actualizing one's potential (Deci & Ryan, 2008), thus making self-actualization and vitality the most suitable choices of eudaimonic well-being measures for the current study.



**Figure 1** Represents the path model for multiple mediation by the three psychological needs in study 1. The hypothesized causal connection between materialism and each basic psychological need is denoted *a*; the hypothesized causal association between each psychological need and well-being is denoted *b*. The strength of the mediated association (i.e. the extent to which the effect of materialism on well-being may be mediated by basic psychological needs satisfaction) is found by multiplying '*a*' with '*b*'. The path denoted *c*' represents the direct association between materialism and well-being when the indirect or mediated path involving basic psychological needs is statistically controlled. The *c* coefficient in parenthesis represents the total relationship between materialism and well-being (not controlling for any of the basic psychological needs).

Our choice of measures was also guided by the difference in the nature of the two studies. Study 1, with a cross-sectional design, lent itself to an exploration of both the hedonic and eudaimonic aspects of well-being. Thus, in study 1, we examined differences in the well-being of individuals as a function of their self-reported materialism and used typical measures of both aspects of well-being used in previous studies (Chen et al., 2014; Karabati & Cemalcilar, 2010; Kasser & Ahuvia, 2002; Kasser & Ryan, 1996) to enable a replication of previous results. In study 2, owing to its experimental design, we used state measures of hedonic and eudaimonic well-being for two reasons. Firstly, since materialism is known to foster upward social comparisons (Chan & Prendergast, 2008), such comparisons may breed mounting discontent and dissatisfaction among individuals, thereby affecting their emotional well-being more than the cognitive appraisal of their overall life satisfaction. Secondly, we felt that our short-term manipulation would be likely to bring about noticeable changes in the momentary evaluation of affect amongst our participants. Thus, how participants felt in real time after being exposed to the experimental manipulation would be a more suitable measure of well-being for study 2.

## Study 1

### Method

**Participants.** The sample for this study consisted of 79 working adults and 152 undergraduate students. Participants completed a battery of scales through an online survey platform. Participants were recruited from either the university research participation pool of a large public university in Singapore or 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. The mean age of the participants was 30.4 years ( $SD = 10.35$ ) and 58.3% were women. The sample comprised 74.7% Chinese, 17.6% Indians and 3.9% Malays, and 3.9% belonged to other races.

### Measures

In addition to the following psychological measures, participants also reported demographic information about themselves such as gender, ethnic identity and income bracket (for working adult participants). Cronbach alphas for all the measures employed in the study appear in Table 1. Since all of our study participants were proficient in English language, none of the measures required translation into their local language.

**Materialistic values.** Richins and Dawson's (1992) Material Values Scale (MVS) is an 18-item scale that

**Table 1** Means, SDs and Inter-Correlations of key study variables (Study 1)

	Mean	SD	A	B	C	D	E	F
A. Materialism	50.43	10.56	(.84)					
B. Life satisfaction	22.95	5.51	-.26**	(.85)				
C. Self-actualization	40.84	4.67	-.38**	.33**	(.63)			
D. Autonomy	4.55	0.79	-.29**	.41**	.61**	(.72)		
E. Competence	4.53	0.88	-.32**	.41**	.53**	.70**	(.73)	
F. Relatedness	4.88	0.87	-.23**	.35**	.48**	.66**	.65**	(.82)

Note.  $N = 231$ ,

\*\* Correlations are significant at the .01 level,

\* correlations are significant at the .05 level; reliability coefficients are given on the diagonal in parenthesis

assesses the importance attached by individuals to material possessions as a route to happiness, success and centrality. A sample item is, 'I admire people who own expensive homes, cars, and clothes'. Subjects responded on a five-point Likert scale (1 = *disagree strongly*, 5 = *agree strongly*).

*Self-actualization.* The Self-Actualization Scale SAS (Jones & Crandall, 1986) is widely used to measure self-actualization. Subjects responded on a four-point Likert scale (1 = *agree*, 4 = *disagree*) to 15 statements such as, 'It is better to be yourself than to be popular'.

*Life satisfaction.* The SWLS (Diener, Emmons, Larsen & Griffin, 1985) consists of five items that measure the individual's evaluation of satisfaction with life in general (e.g., "If I could live my life over, I would change almost nothing"). Respondents select one of seven options (ranging from "*strongly disagree*" to "*strongly agree*"). Responses were averaged to provide a total life satisfaction score.

*Needs satisfaction.* The Basic Psychological Needs Scale (BPNS, Deci & Ryan, 2000) was used to assess the degree to which the participants experienced satisfaction of each of the three needs (autonomy, competence and relatedness). This is a 21-item scale in which respondents indicated their responses to statements on a seven-point Likert scale ranging from 1 (*not at all true*) to 7 (*very true*). Sample items include 'I really like the people I interact with', 'I feel pressured in my life' and 'People I know tell me I am good at what I do'.

## Results and discussion

### Mediation analyses

Table 1 shows the inter-correlations between all key variables used in the study. Since the correlations between the three needs was fairly high, we checked for multicollinearity. The variance inflation factor (VIF) was calculated and all VIF scores were below 2.43. Myers (1990) suggests that a VIF

value of 10 or above should be a cause for concern. Thus, multicollinearity was not a serious problem in the current analysis. We used the bootstrapping approach developed by Hayes (2013) to estimate the direct and indirect effects of materialism on well-being with basic psychological needs as mediators. The majority of the participants in this study were university students, therefore we were unable to control for level of income. However, we used the working status of our participants as a proxy for disposable income. Working status of the participants and gender were used as covariates in the analysis. The indirect effect of materialism on well-being via basic psychological needs satisfaction was significant. Beta coefficients for all of the paths in this model appear in Table 2. We found that only low satisfaction with the need for autonomy was a significant mediator between materialism and well-being whereas the need for competence and relatedness were not significant mediators. The strength of the mediated effect of materialism on life satisfaction through the basic psychological need for autonomy was significant and was estimated by the product of ( $a_1 \times b_1$ ,  $-0.02 \times 1.40$ ) =  $-0.03$ . The 95% CIs ( $-0.07$ ,  $-0.01$ ) obtained for the value of  $a_1 \times b_1$  by bootstrapping did not include zero, the normal theory test was significant ( $Z = -1.94$ ,  $p = .052$ ). The strength of the mediated effect of materialism on self-actualization through the need for autonomy was significant and was estimated by the product of ( $a_1 \times b_1$ ,  $-0.02 \times 2.48$ ) =  $-0.05$ . The 95% CIs ( $-0.09$ ,  $-0.02$ ) obtained for the value of  $a_1 \times b_1$  by bootstrapping did not include zero, the normal theory test was significant ( $Z = -3.18$ ,  $p = .001$ ). The total effect of materialism on well-being (path c in Figure 1 not controlling for basic psychological needs) was  $-0.14$  and  $-0.14$  for life satisfaction and self-actualization respectively and the direct effect of materialism on well-being controlling for the three psychological needs (path c' in Figure 1) was  $-0.07$  and  $-0.08$  respectively. Both these coefficients were statistically significant, suggesting that the effects of materialism on well-being were partially mediated by lower autonomy need satisfaction. Thus, hypothesized mediation by the need for autonomy between materialism and well-being is supported.

**Table 2** Results of mediation analysis of the basic psychological needs between materialism and indicators of well-being (Study 1)

Well-being indicator	Total effect of X on Y	Direct effect of X on Y	Mediation by autonomy need		Mediation by competence need		Mediation by relatedness need		Total R <sup>2</sup>	
	c	c'	a <sub>1</sub>	b <sub>1</sub>	a <sub>2</sub>	b <sub>2</sub>	a <sub>3</sub>	b <sub>3</sub>	a <sub>3</sub> x b <sub>3</sub>	
Life satisfaction	-.14*** (.03)	-.07* (.03)	-0.02** (.01)	1.42* (.63)	-.03** (.01)	ns	-.02** (.01)	ns	ns	.28**
Self-actualization	-.14*** (.02)	-.08** (.02)	-0.02** (.01)	2.48*** (.46)	-.03** (.01)	ns	-.01** (.01)	ns	ns	.44**

Note. N = 231,

\*  $p < .05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p < .001$ , values in parentheses represent standard errors, X = materialism, Y = well-being indicator, a<sub>1</sub> = path from materialism to need for autonomy, a<sub>2</sub> = path from materialism to need for competence, a<sub>3</sub> = path from materialism to need for relatedness, b<sub>1</sub> = path from need for autonomy to well-being indicator, b<sub>2</sub> = path from need for competence to well-being indicator, b<sub>3</sub> = path from need for relatedness to well-being indicator, path c- denotes the strength of the total relationship between materialism and well-being indicators (not controlling for the effect of basic needs), c'- denotes the direct effect of materialism on well-being controlling for basic needs, ns = non-significant, R<sup>2</sup> denotes the proportion of variance in well-being predictable from the overall model. Refer to Figure 1 for a diagrammatic representation of the proposed model.

Study 1 lent empirical support to our proposition that the negative association between materialism and well-being can be explained by lower satisfaction of the need for autonomy only. Our findings provide verification for our self-determination perspective on the detrimental effects of materialism on well-being by showing that materialism represents itself as a domain that is not conducive to the satisfaction of the need for autonomy. However, in order to establish the causal links from materialism to lower autonomy need satisfaction and lower well-being, we conducted an experiment in study 2 in which we examined the extent to which situationally induced materialism may affect the need for autonomy and state levels of well-being.

### Study 2

The goal of the second experimental study was to provide a more explicit test of the mediation model found in study 1. In this study, we used the consumer cuing paradigm as a way to trigger materialistic mindsets. In this paradigm, participants in the consumer cue condition are exposed to pictures of attractive luxury goods that are culturally endorsed symbols of status, image and wealth. It is assumed that consumer cues present in the luxury goods pictures are analogous to the widespread prevalence of such triggering conditions in everyday life.

### Pilot tests

We conducted a pilot study to test if the visual stimuli used were actually capable of eliciting materialistic strivings. Although we used the same pictures that were used by Bauer, Wilkie, Kim, and Bodenhausen (2012), we pilot tested the pictures again in order to ensure their applicability to our sample. Thirty-nine college students were randomly assigned to rate the pleasantness of either 19 pictures of luxury goods such as electronics, cars, clothing, accessories or 19 neutral pictures of everyday products such as utensils, furniture and tools. Then they completed the five-item Terminal Materialism Scale (Scott, 2010) to assess materialistic concerns. However, we found that the two groups did not differ on this measure,  $t(37) = 0.98, p = .334$ . We suspected that this might be due to social desirability concerns that have been found to be prevalent in materialism research (Mick, 1996). Thus, we conducted a second pilot study using an implicit measure of materialism. Thirty-three undergraduate students were assigned to rate either luxury goods pictures or neutral pictures as in the first pilot procedure. Then, as a part of a seemingly unrelated study, they were asked to complete a lexical decision task (LDT, Meyer & Schvaneveldt, 1971). We used the LDT as an implicit measure of the salience of materialistic concerns among the participants and it was introduced to them as a word

recognition task. Participants were shown a string of letters on the computer screen and had to indicate if it was a valid English word or not. If the word was valid, they had to press the 'I' key on the keyboard and if they thought it was a non-word, they had to press the 'E' key. We identified five target words and five neutral words through a two-step pre-testing procedure. First, the experimenters brainstormed five words related to materialism based on its definitional characteristics as 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 to choose from a set of an 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 non-target words were *table, shoulder, shirt, horse* and *banana*. The target ( $M = 11.94$ ,  $SD = 1.55$ ) and non-target ( $M = 12.83$ ,  $SD = 1.75$ ) words did not differ from each other in terms of valence and were rated as equally pleasant,  $t(17) = -1.36$ ,  $p = .190$ . More importantly, the five target words were more frequently associated with success, wealth, achievement, appearance and money ( $M = 47.8$ ,  $SD = 9.83$ ) compared to the five non-target words ( $M = 12.4$ ,  $SD = 12.77$ ),  $t(4) = 3.65$ ,  $p = .022$ .

We expected that the reaction time of participants in the luxury goods condition to materialism-related target words would be faster than those who were shown neutral pictures. Results indicated that participants in the second pilot study who were exposed to the luxury goods images had faster reaction times ( $M = 237.44$  milliseconds,  $SD = 27.19$ ) than those who were exposed to neutral images ( $M = 288.44$  milliseconds,  $SD = 21.07$ ),  $t(31) = -5.9$ ,  $p = .000$ . Thus we were confident that our pictorial manipulation activated materialistic concerns among participants.

### Main study

**Participants.** Participants were 82 university students (males = 26, females = 56) who were recruited from the psychology department research participation pool. Participation was voluntary and anonymity of responses was maintained. The mean age of the sample was 21.45 years ( $SD = 2.45$ ), age range = 18–27 years. Regarding ethnicity, 82.9% were Chinese, 4.8% were Malay, 7.3% were Indian and the rest belonged to other races. IRB approval was obtained prior to commencement of the study.

**Procedure.** Participants were ostensibly invited to participate in a visual perception study where they rated the pleasantness of pictures, which were supposedly being considered for use in marketing research. Participants were randomly assigned to view 19 pictures of either luxury consumer goods

such as electronics, cars, clothing, accessories (consumer-cue condition) or 19 pictures of neutral objects such as utensils, furniture, tools (neutral control condition). The visual stimuli were the same as those used by Bauer et al. (2012). However, we updated the pictures of luxury goods to represent the latest models of the products (e.g. picture of PlayStation 2 was replaced by picture of PlayStation 4). Following this, the participants were asked to answer some survey questions, ostensibly for a well-being study.

**Measures.** As part of the well-being segment, participants responded to questionnaires that included the basic psychological needs scale (BPNS, Deci & Ryan, 2000), and two measures of state well-being. Firstly, the Positive and Negative Affect Scale (PANAS, Watson, Clark, & Tellegen, 1988) was used to assess the participants' felt emotions at that very moment (here and now). Ten positive (e.g. excited, pleased) and 10 negative (e.g. ashamed, distressed) mood adjectives were rated on a scale of 1 (*not at all*) to 5 (*extremely*). Secondly, the subjective vitality scale (SVS, Ryan & Frederick, 1997) was used to measure the extent to which participants were feeling alive, alert and energetic at the present moment. A seven-point Likert scale ranging from 1 (*not at all true*) to 7 (*very true*) was used to indicate participants' agreement with statements like 'I am looking forward to each new day' and 'I feel energized right now'.

## Results

### Manipulation check

In order to ensure that the pictures in the consumer-cue condition activated situational materialism, after completing the dependent measures, participants were asked to rate the extent to which the images they saw emphasized core elements of materialism such as wealth, status, image and fame on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Results confirmed that the activation of situational materialism worked as intended, as pictures in the consumer-cue condition were rated as placing significantly greater emphasis on core elements of materialism ( $M = 4.08$ ,  $SD = 0.51$ ) than pictures in the neutral control condition ( $M = 2.39$ ,  $SD = 0.68$ ),  $t(80) = 12.60$ ,  $p < .001$ .

### Effects on autonomy satisfaction and emotional well-being

Independent sample  $t$  tests were conducted to determine differences in autonomy need satisfaction, positive and negative affect and state subjective vitality, between the consumer-cue and neutral control conditions (for means, standard deviations and  $t$  tests, see Table 3). While participants in the consumer-cue condition reported decreased levels of autonomy satisfaction and higher

**Table 3** Descriptive statistics and *t* test results (Study 2)

Dependent Measure	Consumer-cue		Neutral Control		Comparison	
	Mean	SD	Mean	SD	<i>t</i>	<i>p</i>
Autonomy	4.49	0.72	4.85	0.86	-2.03 (79)	.05
Competence	4.63	0.73	4.55	0.92	0.45 (78)	.65
Relatedness	4.99	0.73	5.25	0.84	-1.52 (79)	.13
Positive Affect	28.09	7.41	27.41	8.11	0.29 (80)	.76
Negative Affect	16.50	3.87	14.39	5.40	2.09 (80)	.04
Vitality	3.79	1.10	3.88	0.99	-0.40 (80)	.69
Valence of pictures	3.77	0.33	3.13	0.41	7.63 (80)	.00

*Note.* Variation in degrees of freedom for autonomy, competence and relatedness is due to missing data on a few items.

negative affect compared to those in the control condition, there were no significant differences with respect to competence and relatedness need satisfaction between the conditions. Participants in the two conditions also did not differ in terms of reported positive affect and vitality. Additionally, the pictures used in both conditions differed significantly on valence. As in study 1, we tested the mediation model linking materialism to well-being via autonomy need satisfaction in this study as well. However, this time, the independent variable was the assignment into either of the two experimental conditions and was treated as a categorical variable. We used the Mediate macro for SPSS developed by Hayes and Preacher (2014) that enables the estimation of relative direct and indirect effects of causal variable(s) on outcome variables through a proposed mediator variable. If the effect of the independent variable on the dependent variable (total effect) is statistically significant and the effect of the independent variable on the dependent variable with the mediator in the model (direct effect) becomes statistically non-significant, there is said to be evidence for full mediation. Results indicated that the total and direct effects (unstandardized coefficients) of activated materialism on negative affect were  $B = -2.25$ ,  $SE = 1.04$ ,  $p = .03$  and  $B = -1.46$ ,  $SE = 1.00$ ,  $p = .15$  respectively. These results indicated that the total effects model was significant but the direct effects model with the inclusion of the mediator was not significant. Further, the indirect effect of the activated materialism on negative affect via autonomy also proved significant, with a point estimate of  $-0.79$ , and the 95% bootstrap CI  $[-1.6513, -0.1253]$  did not include zero. Thus autonomy need satisfaction fully mediated the effect of the materialism salience manipulation on negative affect.

### General discussion

The present studies set out to examine why materialism is negatively related to well-being. We proposed that lower satisfaction of the need for autonomy explains this consistent

negative relationship. This study advances existing SDT literature on the materialism–well-being link by showing – both via correlational and experimental evidence – that it is the need for autonomy, and not the other two basic needs of relatedness and competence, that is most strongly compromised when people give importance to materialistic pursuits.

Study 1 lent evidence for the role of reduced satisfaction of the need for autonomy as a mediating mechanism between materialism and well-being. The role of overall psychological needs as a mediating mechanism between materialism and well-being has been documented in a series of studies in the recent past (Chen et al., 2014; Kasser et al., 2014; Tsang et al., 2014). Our study has attempted to examine the individual effects of each of the three basic needs and validated our theoretical claim that the need for autonomy is most relevant when considering the relationship between materialism and well-being.

Specifically, we found that when people are focused on materialistic pursuits, they experience a loss of autonomy. This is because materialistic pursuits are extrinsic in nature and are usually done to meet external standards of social status, identity and position. Kasser (2002) discusses why materialistic values along with their explicit external focus are unable to satisfy the need for autonomy. He suggests that this might happen for three reasons. Firstly, materialistic individuals are more likely to focus on rewards, praise and approval (Khanna & Kasser, 2001) in their pursuits, thereby distracting themselves from the interesting, enjoyable and challenging aspects of those pursuits. As autonomy requires engagement in any activity with a sense of interest and commitment, materialistic individuals often do not experience this sense of volition. Secondly, since materialistic individuals exhibit a high degree of self-presentational concerns (Christopher & Schlenker, 2004) and intrinsically motivating/autonomous activities require losing self-consciousness, it seems that materialism is fundamentally different from autonomy. Finally, a variety of materialistic behaviours such as shopping (Fave & Bassi, 2000) watching television (Csikszentmihalyi, 1999) or working overtime (Schor, 1992) are unlikely to make individuals experience flow – one of the essential ingredients of being in an autonomous state. Thus, the sense of inherent choice or will in pursuing materialistic aspirations is often lost. Further, the cultural composition of our participants may have made them more prone to experiencing lower autonomy. Even though the three basic psychological needs are assumed to be universal, Ryan and Deci (2008) point out that the needs may be expressed differently and through different channels in variable societies, cultures and stages of life. In East Asian cultures where degrees of face consciousness are particularly high (Liao & Wang, 2009), people are very concerned about how they are perceived by others and experience higher social anxiety compared to Westerners. (Abe, Bagozzi, & Sadarangani, 1996). Such

public self-consciousness is negatively related to autonomy (Schlenker & Weigold, 1990).

As expected, the mediated path for the needs of competence and relatedness was not significant and in line with our theorized proposal. Drawing from personal goals motivational theory (see Little, 1989), well-being may be enhanced as a result of attaining personal goals that are either supported by others and/or engender a sense of efficacy. Material success (acquiring luxurious and designer products, cars, bungalows, etc.) might afford individuals with this sense of achievement and may work towards improving feelings of competence, at least in the short run. Moreover, a variety of tangible goods that provide people with an opportunity to demonstrate their abilities such as books, musical instruments and sporting goods have been found to satisfy the need for competence as compared to tangibles such as clothing, jewellery, beauty products or accessories (Guevarra & Howell, 2015). However, we acknowledge that, in the long run, the need for competence may not be readily satisfied via material accomplishments because 'it is always possible to have newer, better and more goods, rendering material pursuits ultimately unsatisfying (Solberg, Diener, & Robinson, 2004, p. 39).

Similarly, the results show that pursuing materialistic aspirations may not hinder an individual's relationships. This might be due to the fact that there are a number of relational activities possible when individuals climb the ladder of material success. For instance, previous research has shown that discretionary purchase of life experiences such as travelling, dining and adventure sports satisfy the psychological need for relatedness (Caprariello & Reis, 2013). Thus, even though it may be argued that these positive relational experiences may be fleeting, it seems that these short-lived gains are sufficient for encouraging individuals to stay engaged in materialistic pursuits.

Moreover, branded expensive material goods bring face and enhance the social position of individuals due to the high social recognition of these products (Tse, 1996). East Asian communities, with their distinct focus on face consciousness tend to regard face as support in interpersonal relationships (Hwang, 1987).

Our results from study 1 suggest that materialism is related to greater compromises in the fulfillment of autonomy needs as compared to the other two needs of competence and relatedness. Consequently, the lowering of this sense of volition and autonomy is associated with diminished well-being.

Study 2 bolstered the findings of study 1 by examining these relationships through experimental procedures. Study 2 showed that individuals who were situationally exposed to cues of materialism (such as pictures of luxury products) felt less autonomous and experienced greater negative affect compared to those who were exposed to neutral pictures. These findings support the theoretical standpoint that as people engage more in materialistic thoughts, they tend to

compare themselves with others who have higher status, more possessions and a better image. Participants in the consumer-cue condition may make such upward social comparisons between themselves and those who can own the luxury products shown in the pictures. Consequently, they may experience a sense of diminished autonomy.

Further, they tend to experience negative emotionality in the form of higher dissatisfaction with themselves, greater distress and anxiety.

In line with earlier findings whereby situationally activated materialism was associated with greater negative affect but not lesser positive affect (Bauer et al., 2012), we also found that participants exposed to consumer-cues did not differ from those exposed to neutral pictures with respect to positive affect. These findings echo what researchers have said about the independence of positive and negative affect such that the amount of positive and negative affect experienced by a person is unrelated to one another (Diener, Larsen, Levine and Emmons, 1985) and that the two correlate differently to different classes of variables (Watson et al., 1988). More specifically, previous research has shown that negative affect may be more closely associated with materialism (Christopher & Schlenker, 2004; Hudders & Pandelaere, 2012). Christopher and Schlenker (2004) found that social aspects of identity (an important accompaniment of materialism) were only related to negative affect and not positive affect. Moreover, materialism did not predict positive affect in their study and was significantly correlated with negative affect items such as *distressed*, *hostile*, *upset*, and *irritable*. Thus, it is plausible that in our study too exposure to materialistic content led to the experience of negative emotionality without a corresponding decrease in positive affective states. Additionally, we also suspected that this might be due to the significant difference in the valence of the pictures used in both conditions. Pictures in the consumer-cue condition were rated as significantly more pleasant than pictures in the neutral control condition (see last row in Table 3). There is a possibility that the positive valence of pictures in the consumer-cue condition may have led to a ceiling effect and worked to arouse positive affect among participants in the experimental group.

Our study is the first to show that a temporary activation of materialism produces noticeable changes in an individual's sense of autonomy and negative affect. This finding is important because it points towards the malleability of materialism as an attitude/value system. We have seen in study 2 that mere exposure to limited materialistic content can focus people's attention on such stimuli and make their response tendencies more attuned to materialistic concerns, diminish autonomy satisfaction and increase negative affect. Therefore, the rampant and continuous bombardment of such messages in contemporary consumer climate pose real dangers to emotional well-being. The costs to well-being may be higher in East Asian cultures where pressures towards

materialism are compounded by the high levels of face consciousness.

To summarize, an important theoretical contribution of this research lies in providing support for the role of the need for autonomy in the materialism–well-being link. This is valuable because it clarifies the specific antagonistic relationship between need for autonomy and materialism. This knowledge may be useful in improving the effectiveness of existing intervention programs designed for reducing materialism (e.g. [www.sharesavespend.com](http://www.sharesavespend.com); c.f. Kasser et al., 2014) by incorporating autonomy-enhancing elements into these programs. An important empirical question that warrants examination in future longitudinal studies is whether the short-term deficits in emotional well-being translate into long-term changes in general well-being. Along the lines of the previously examined person-oriented approach (Ratelle, Guay, Vallerand, Larose, & Senecal, 2007), future work may look into how different motivational profiles link to materialism and whether the autonomous profiles lead to lower materialism and higher well-being.

### Limitations and concluding remarks

Although the current study provides empirical evidence to validate the claims of SDT in relating materialism to well-being, certain caveats need to be made. In both studies, our sample was somewhat homogenous, which limits the generalizability of our results. Future research may test these hypotheses with adolescents, older adults and culturally

diverse samples. Further, only emotional well-being was assessed in study 2. Future longitudinal studies may attempt to cover both the hedonic/eudaimonic and trait/state aspects of well-being. This will enable researchers to have a clearer picture about the long-term effects of being exposed to materialistic cues on well-being.

In conclusion, we found that materialistic values are harmful for our psychological well-being (study 1) and emotional well-being (study 2). Furthermore, materialism impacts well-being and affect through the reduced satisfaction of the basic psychological need for autonomy. SDT postulates that the need for autonomy must be sufficiently satisfied before intrinsic motivation and healthy mental growth can occur. Moreover, the theory states that need for autonomy is primary – in that it needs to be satisfied before the needs for competence and relatedness can make any contributions to intrinsic motivation.

A vast array of SDT research has shown that psychological well-being is closely connected with intrinsic motivation. However, material accomplishment, with its focus on extrinsic forms of motivation, leaves little room for enhancing well-being; rather, it works towards dampening it. Thus, autonomy-supportive environments might have the potential to act as buffers against the detrimental effects of materialism on individual well-being. Our study is the first to demonstrate this experimentally, and opens up a line for future research investigations on how to meet the need for autonomy in spite of the encroaching influence of materialism in increasingly consumerist urban climates.

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