

Predictors of Materialism in Young Adults: A Relationship Perspective

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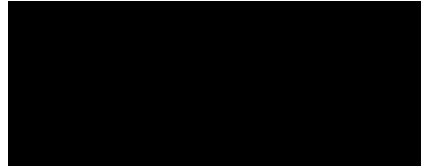
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Thesis Declaration Form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature:



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Date: 6th October, 2019

Overview

With the growing size and dominance of capitalistic economies in the 21st century, materialism has come under the spotlight of research in not only consumer and social studies, but also psychology. The pursuit of money and material goods can be easily spotted in the everyday life of modern society. Despite a consistent finding of a negative association between materialism and psychological well-being (i.e. between high materialism and poor well-being), less research attention has been paid to the potential underlying mechanism of materialism (Dittmar, Bond, Hurst & Kasser, 2014). Further, previous studies attempting to identify predictors of materialism were often limited by a lack of a theoretical framework within which to couch empirical investigation. The current thesis was informed by Bronfenbrenner's Ecological Systems Theory and aimed to explore how relationship factors operating on different levels (e.g. at the level of family and community), are related to an individual's level of materialism.

The first part of the thesis is a conceptual introduction which explores the existing literature on the link between relationship quality and materialism. The second part of the thesis is an empirical study informed by previous findings and gaps in the existing literature. Young adults between 18-30 years old were invited to complete an online questionnaire that assessed materialism, self-esteem and attachment style, in addition to the self-perceived quality of the individual's relationships in a number of different domains: family, peers, intimate/ romantic partners, online relationships and relationship with the broader community. The current thesis aimed to address gaps in the existing literature and contribute further insight on whether and how one's relationship with others is related to one's relationship to material things.

Impact Statement

This thesis draws attention to the link between individual psychology and the larger socio-cultural context within which it is embedded in. Materialism is a ubiquitous phenomenon in the modern society that has attracted growing research attention. A convincing body of research has reported that high level of materialism is associated with poor psychological well-being and mental health problems (Dittmar, Bond, Hurst & Kasser, 2014). However, less research attention has been paid to the underlying mechanism of materialism. Based on evidence from the existing literature that relationship difficulties are closely linked with materialism (studies are reviewed in the conceptual chapter), the current thesis takes a relationship perspective and attempts to further understand the nature of this link.

The conceptual chapter section offers a comprehensive review of the previous literature on the how relationship variables operating at different levels are related to an individual's level of materialism. The review highlights the existing trend in the research of materialism and identifies a number of gaps in the literature that informed the current empirical study.

The empirical study is the first one in the field to investigate how materialism is related to relationship quality using an overarching theoretical framework, whilst controlling for a number of individual level factors. Although previous studies have attempted to investigate relationship predictors of materialism, these predictors tend to be examined in isolation without comparison between each other. By modelling a series of relationship variables together, the current study is able to identify variables that demonstrate the strongest association with materialism.

In addition to addressing a number of gaps in the existing literature, the current study offers further insight on the potential underlying mechanism of materialism and clarifies direction for future longitudinal research on the development of materialism. Knowledge on the underlying mechanism of materialism would equip researchers, psychologists and even policy makers with important information in making changes on both psychological and societal levels to improve the psychological well-being of the modern population.

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PART I. A Conceptual Introduction

Definitions of Materialism

Materialism is commonly viewed as a personal orientation that endorses material goods, possessions and financial success. However, the exact definition of materialism has been evolving over-time.

Materialism was initially conceptualised by Belk (1985) as a combination of personality traits, including possessiveness, non-generosity and envy. Possessiveness refers to a strong desire to own material possessions and concerns around the potential loss of possessions; non-generosity is described as “an unwillingness to give or share possessions with others”; and envy is defined as the feeling of resentment towards those who own what the envious person wants. Belk’s subsequent work teased out a fourth trait, preservation, from possessiveness (Ger and Belk, 1993). Preservation refers to a tendency to make memories or experiences tangible through material objects such as souvenirs and photographs.

In contrast to Belk’s conceptualisation of materialism as a set of personality traits, Richins and colleagues (Fournier & Richins 1991; Richins 1994a, 1994b; Richins and Dawson 1992) saw materialism as a group of values. Values are enduring core beliefs that one holds about what is important in life. In Richins’ definition, materialism is a set of values that emphasise the importance of acquiring material possessions and the importance of such acquisition in happiness and success. There are three key components to the construct of materialism as a set of values: centrality, happiness and success (Richins & Dawson, 1992). Centrality refers to the importance one attaches to material possessions and the belief that such possessions play a central role in one’s life. Happiness is the belief that owning the desired possessions will lead to one’s well-being and that one would be happier with more and better possessions. Success refers to the common belief held by

materialists that one's success can be judged by the things one owns. Richins & Dawson developed the Material Values Scale (MVS) to measure these three facets of materialism. Richins also noted that materialism is not a dichotomy, but a continuum ranging from low to high; consequently, it is an over-simplification to divide the population into materialists and non-materialists (Richins, 2017).

Another notable definition of materialism was provided by the sociologist Inglehart (1990), who based his understanding of materialism on Maslow's hierarchy of needs theory (Maslow, 1943; 1970). Maslow's hierarchy of needs theory categorises human needs into five hierarchical tiers, including physiological needs, safety, love and belonging, esteem and self-actualization (from bottom going upwards). The needs lower down in the hierarchy (e.g. food, water, safety) are the most basic needs that must be satisfied before people can move onto the more complex needs higher up in the hierarchy (e.g. intimacy and esteem). Inglehart viewed materialism as an enduring focus on lower-tier needs such as physiological comfort and safety over higher-tier needs such as love and belonging, self-esteem and self-actualisation. He defined the opposite of materialism as post-materialism. A post-materialist places a greater emphasis on achieving higher-order needs over the pursuit of physical and material satisfaction.

A later definition viewed materialism from an aspiration perspective and defined materialism as a set of values and goals that focus on wealth, possession, image and status (Kasser & Ryan, 1993). Kasser and Ryan saw materialists as placing more importance on "extrinsic goals" that focus on attaining praise and rewards and less importance on "intrinsic goals" such as personal growth, affiliation, and community feeling. Individuals who emphasize the pursuit of materialistic goals tend to do so at the expense of neglecting non-materialistic/intrinsic goals. On the

basis of such conceptualisation, he developed the Aspiration Index (Kasser & Ryan, 1993), which measures the significance that participants place on materialistic goals, as well as such significance in comparison to the significance they place on a variety of other types of goals, such as personal relationship, community involvement and spirituality.

Why Study Materialism

There has been a growing concern that modern generations are becoming more and more materialistic, particularly in countries characterised by advanced capitalism (Butler, 2018). Although materialistic individuals tend to view the possession of material goods as a means to achieve happiness (Fournier & Richins, 1991), scholars and researchers have consistently suggested otherwise. Materialism has historically been criticised for having a detrimental impact on happiness and quality of life (see Belk, 1983 for a review); and since the 1980s, evidence from empirical studies began to accumulate and support the notion that materialism correlates negatively with one's personal well-being, particularly in adults (see metanalysis by Dittmar, Bond, Hurst & Kasser (2014) for example). The term "personal well-being" represents a diverse array of well-being measures that not only look at subjective well-being and life satisfaction, but also examine physical and mental health (e.g. anxiety, depression and general psychopathology). It is worth-noting that a negative association was observed between materialism and both physical and mental health (Dittmar, Bond, Hurst & Kasser, 2014).

Theories of Materialism Development

Despite a convincing body of research supporting the association between high materialism and negative well-being, less research attention has been paid to factors involved in the development of materialism. An important aspect of materialism is that it is unlikely to be determined by genetics alone. A twin study has found that individual differences in materialism were almost entirely attributable to environmental factors (Giddens, Schermer, & Vernon, 2009; Renner et. al, 2012). Findings on the relationship between personality and materialism is contradictory (Cai, Shi, Fang, & Luo, 2015; Watson, 2015; Pilch & Górnik-Durose ,2016). If materialism is not well-explained by heritability or personality, it is therefore meaningful and important to investigate how materialism is learned or developed through individuals' interaction with their environment.

Many theories and models have made attempts to explain the underlying mechanism of the materialism development. I will describe here the four most commonly held of these: (i) the escape theory, (ii) the post-materialism theory, (iii) the socialisation/reinforcement theory, and (iv) the symbolic self-completion theory.

Escape Theory

The escape theory posits that the pursuit of materialism is an escape strategy that materialistic individuals tend to use to escape from the unpleasant reality of their life. For example, individuals who are dissatisfied with themselves or their quality of life, who cope less effectively with stress, or who suffer from negative emotions, are more likely to adopt impulsive buying and material consumption. By focusing on materialistic goals, their attention and cognition are removed from reflecting on the

unpleasant life realities, therefore providing an escape (Donnelly, Ksendzova, Howell, Vohs, & Baumeister, 2016).

Post-Materialism Theory

Inglehart's post-materialism theory looked at the formation of materialistic values from a socio-cultural perspective (Inglehart 1971, 1990; Inglehart & Abramson 1994). He hypothesized a cultural shift in the values of post-industrial society from materialistic to post-materialist. That is, generations (e.g. born before World War II) that grew up in material deprivation value material security more than generations (e.g. born after WWII) that grew up in affluence; the latter seem to de-emphasise their material needs and place more importance on non-materialistic needs such as self-expression, autonomy and self-actualization. Inglehart suggested two factors that may have fostered such a change in values: scarcity and socialisation. Scarcity describes how people tend to place greater value on things that are in shorter supply. Therefore, people who felt economically deprived in their formative years would place a stronger emphasis on material security, while the children with material affluence may stress non-material fulfilment. Socialisation refers to the relative stability of values, i.e. the notion that values established in one's formative years are likely to remain stable into adulthood. Interestingly, according to Inglehart's account (Inglehart 1971, 1990; Inglehart & Abramson 1994), with increasing material prosperity in advanced capitalist societies, post-materialistic values would also gradually grow and become more prevalent than materialistic values. However, this appears to contradict current beliefs that growing up in an affluent capitalistic economy contributes to materialism, and the common concerns that younger generations are becoming more and more materialistic.

Socialisation/Reinforcement Theory

The socialisation/reinforcement theory (Richins, 2017) adopted a developmental perspective and described the processes of materialism development in childhood and its subsequent reinforcement and perpetuation into adulthood. In this model, the development of materialism in childhood is especially relevant to the child's experience of creating a secure personal identity and development of satisfactory relationships. The model describes that child's life is filled with daily activities where they learn to manage by utilizing resources within their repertoire. Each child has a unique assortment of resources that can be categorised as either tangible resources (e.g. clothing and desirable possessions) or intangible resources (e.g. humour, intelligence and social skills). Through daily management of events, a child develops a preference for resources that provide favourable outcomes (e.g. being popular for having cool clothes/toys; being praised for telling a good joke/doing good in class). The accumulation of these outcomes leads to their knowledge about self and an emerging self-identity (e.g. learning that "I am intelligent" from doing well in maths classes). Children who rely on tangible resources to manage daily events and peer relationships are likely to have a less stable and confident self-identity than children who rely on intangible resources. This is because, according to Richins (2017), intangible resources are essentially part of one's self, while tangible resources are external and changeable. Children who rely on tangible resources tend to have greater appreciation for the power of material goods, which can lead to transformation expectation where they believe that self-identity can be transformed/improved through possession of goods. This tends to encourage the development of materialism among those with a less secure sense of self. Without a secure sense of self, individuals are at higher risk to stress and threats

in daily life, resulting in psychological discomfort. The need to reduce such discomfort, along with the individual's belief in the power of material acquisition, further reinforces and perpetuates materialistic tendencies.

Symbolic Self-completion Theory

The symbolic self-completion theory (Wicklund & Gollwitzer, 1981) suggested that individuals desire and seek to acquire symbols that signal their self-definitions, i.e. what they perceive as important or as their ideal self. When an individual is committed to achieve a goal that is important to his/her self-definition (e.g. success and social status), the individual will seek to acquire socially acknowledged symbols to indicate that he/she has completed that goal (e.g. expensive possessions). A study conducted under this theoretical framework suggests that individuals with a lack of competence in their self-definition tend to have stronger desire to obtain objects that symbolise possession of such competence (Braun & Wicklund 1989).

With a growing theoretical interest in the development of materialism, empirical research had also explored the predictors of materialism with the hope of acquiring further insight into the developmental mechanism of materialism. These studies are reviewed later in this paper. Although these studies investigated factors relevant to materialism from multiple perspectives (e.g. individual, psychological, interpersonal and socio-environmental), they were often limited in that factors tended to be studied alone without considering the overall picture of an individual's life. In the current thesis, we took a systematic approach in studying how materialism is related to an individual's relationship quality by drawing on Ecological Systems Theory to explore the individual's relationship environment.

Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory is an influential framework in shaping the ways researchers approach the study of human development in the context of a complex environment. Bronfenbrenner conceptualised five nested environmental systems within which an individual is embedded and interacts, from the individual microsystem to the socio-cultural macrosystem. Bronfenbrenner also stressed the importance of studying an individual's relationships in these different systems in an attempt to better understand his/her development (Bronfenbrenner, 1979). This conceptualisation serves as a useful tool in dissecting and understanding an individual's complex network of relationship.

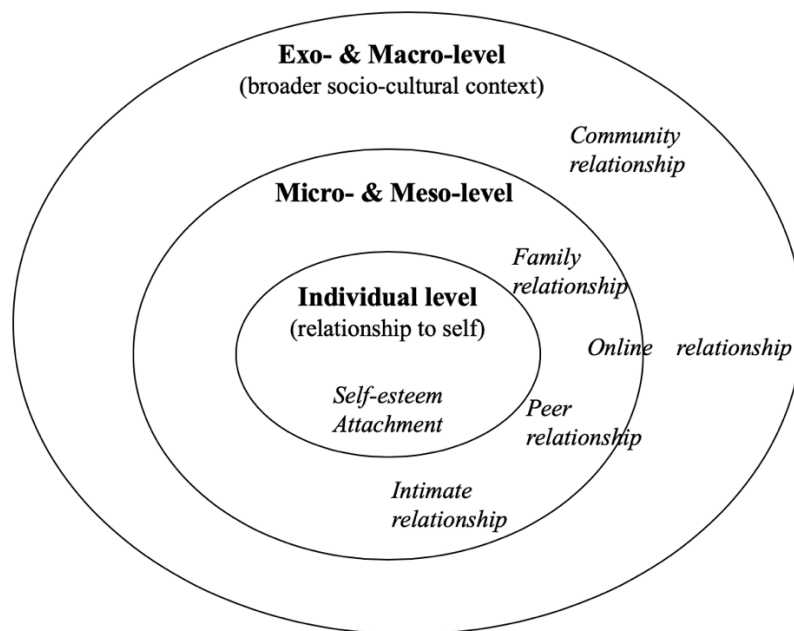
Review of Literature on Materialism and Relationship Variables

In this section I will discuss the existing literature that has explored the relationship between materialism and relationship variables. Inspired and guided by Bronfenbrenner's theoretical framework, the current study plans to investigate the association between materialism and the quality of relationships operating at multiple levels. An individual's relationships were therefore conceptualised in the following categories (see Figure 1):

- (1) Relationship to self (attachment and self-esteem), which pertains to the core individual level of one's ecological systems;
- (2) Family relationships, peer relationships and intimate (romantic/sexual) relationships, which roughly pertain to the micro- and meso-level of an individual's system that reflects an individual's immediate environment and connections;

- (3) Community relationship, which pertains to the individual's broader environment / social context;
- (4) Online relationships, which may be conceptualised as spanning across multiple levels, from the micro- / meso- to the broader socio-cultural macrosystem.

Figure 1. Conceptualisation of an individual's relationships using the Bronfenbrenner's ecological framework.



A literature review was conducted to obtain a thorough understanding of existing research on materialism in relation to the relationship variables identified above, including self-esteem, attachment, family relationship, peer relationship, intimate relationship, community relationship and online relationship. A Psych-info (ovidsp) search (January, 2019) was conducted for each variable using a variety of possible search terms (detailed in each section). Relevant studies were identified and reviewed in the discussion below.

Relationship to Self

The concept of self has been closely linked with individual materialism. A reasonable body of research has supported the notion that individuals with materialistic values tend to have an unstable sense of self, e.g. greater self-doubt (Chang & Arkin, 2002; Rindfleisch, Burroughs, & Wong, 2009), more ambivalence in perceived self-worth (Frost, Kyrios, McCarthy & Matthews, 2007) and lack of certainty (Noguti & Bokeyar,2014) and clarity in self-concept (Reeves, Baker, & Truluck, 2012).

There has not been a clear definition in the literature on what constitutes an individual's relationship to self. However, two constructs commonly used in psychological research, seem to map on to the relationship to self: self-esteem and attachment. Self-esteem is a reliable and widely used measure of an individual's relationship to self; thus, it refers to an individual's subjective evaluation of their own self-worth (Mruk, 1999). Many studies have shown that self-esteem is closely related to materialism (see studies reviewed below); however, to our knowledge, this has not been systematically reviewed in the literature. Attachment is another key concept in understanding an individual's relationship to self and others. Attachment refers to the intimate bond formed between an individual as a child and the primary caregiver in the child's early years, which remains stable over time and affects the individual's later relationships and life experiences (Bowlby, 1969). Secure attachment describes a positive view of self, others and relationships; whereas insecure attachment describes difficulties in the view of self, others and relationships (Bowlby, 1969). Fewer studies have looked at the role of attachment in the context of materialism, but some associations have been indicated.

To evaluate the extant research on self-esteem and attachment in relation to materialism, we conducted a Psych-info (ovidsp) search (January 14th, 2019) using the following search terms: (materialism OR materialistic) AND (attachment OR self-esteem). A total of 136 results were returned, of which 17 were relevant. Only empirical research studies where self-esteem or attachment was investigated as a primary variable were included for discussion.

Self-esteem

Research examining self-esteem as a predictor of materialism have reported consistent findings. Individuals with low self-esteem tend to be more materialistic than individuals with high self-esteem (Nagpaul & Pang, 2017; Park & John, 2011). Such associations have been found in western as well as non-western cultures, e.g. among Chinese children and adolescents (Chan, 2013).

Studies that were designed to investigate the relationship between materialism and other environmental factors (e.g. family, peer or advertising) reported that self-esteem played a mediating or moderating role between the relationship between materialism and these environmental factors (Chaplin & John, 2010; Jiang, Zhang, Ke, Hawk & Qiu, 2015; Nguyen, 2004). Using an interactive interview format where adolescents and parents completed surveys on materialism, self-esteem, parental and peer support, Chaplin & John (2010) found a negative relationship between materialism and both parental and peer support; and both relationships were mediated by self-esteem. They argued that supportive parents can dampen adolescents' materialistic tendency by strengthening their self-esteem, which potentially decreases their need to use material possessions to develop positive self-perceptions. A similar study conducted among adolescents in China showed a

positive correlation between parental rejection and high materialistic values, an association that was moderated by self-esteem (Fu, Kou & Yang, 2015). However, contrary to findings from most studies that low self-esteem was associated with high materialism, Meek (2007) reported that the amount of television viewing was associated with increased materialism, but only in individuals with high self-esteem as opposed to those with low self-esteem.

In addition to correlational studies, experimental studies showed that increased self-esteem led to a low level of materialism (Jiang, Zhang, Ke, Hawk, & Qiu, 2015; Liang, Liu, Tan, Huang, Dang & Zheng, 2016). For example, participants who were primed with experimentally induced self-esteem reported lower levels of materialism (Jiang, Zhang, Ke, Hawk, & Qiu, 2015;); similarly, participants primed with self-doubt related words (e.g insecure, uncertainty etc.) showed higher levels of materialism (Chang & Arkin, 2002)

Many of these studies suggested that feelings of low self-worth orient people towards materialistic pursuits as a compensatory strategy (Levy, Forehand & Jain, 2011; Li, Lu, Xia & Guo, 2018; Noguti & Bokeyar, 2014). For example, money was found to help people cope better with negative feelings evoked by mortality concerns and seems to activate positive self-esteem (Gąsiorowska, Zaleśkiewicz & Kesebir, 2018). In the study by Li, Lu, Xia & Guo (2018), college students from lower socio-economic backgrounds showed a higher tendency to use materialistic behaviours to compensate for low self-esteem. In line with the symbolic self-completion account of materialism development, Noguti & Bokeyar (2014) suggested that material objects can be used as symbols of self-worth; these symbols have the effect of reducing feelings of uncertainty towards self. Chaplin & John (2010) also hypothesized that self-esteem reduces adolescents' need to use material possessions as a mean to

achieve positive self-perception. Levy, Forehand & Jain (2011) argued along a similar line and proposed that materialistic behaviours occur when an individual's social self-esteem is challenged, resulting in a need to repair through material purchases that are likely to impress others.

Attachment

A smaller body of research has investigated the potential link between attachment and materialism. Various aspects of attachment have been linked to materialism, including attachment security and specific attachment styles (e.g. anxious attachment style and avoidant attachment style).

In an experimental study, participants were primed with feelings of attachment security by reflecting on their experience in interpersonal relationships. Results showed that experimentally induced attachment security effectively created a decrease in participants' level of materialism regardless of participants' attachment styles (Sun, Wang, Jiang & Wang, 2018).

There are three primary attachment categories (secure, anxious and avoidant), which are known as the attachment styles (Ainsworth, 1979). Attachment styles have also been associated with materialism. A study by Norris, Lambert, DeWall, & Fincham (2012) supported a link between anxious attachment and materialism. They suggested that anxiously-attached individuals were more likely to form relationship with material objects in order to cope with the loneliness that results from a lack of meaningful social relationship with people. Kosmicki (2003) reported that anxious attachment style was predictive of the materialistic trait envy; and avoidant attachment was associated with the materialistic trait non-generosity. However, Ksomicki's findings were not replicated in a later study, which emphasised the need

for further research on the link between materialism and attachment styles (Scotti, 2013).

Relationship with Others

Family relationship

As an important environmental influence on an individual's development, family factors have been studied extensively in materialism research. A variety of family factors, such as family economic resources, disruption (e.g. divorce or separation of parents), parenting, communication and relationship with parents have been studied in the context of materialism (see Richins, 2017 for a review). Despite a large body of research in this area, most studies have focused on family economic resources or disruptions, whilst fewer studies have looked at parenting / parenting styles, and limited studies have directly investigated family relationship quality. The current literature review chose to focus on extant literature research that investigated family relationship and parenting, as they have received less research attention and are in line with the aims of this thesis.

We conducted a Psych-info (ovidsp) search (January 14th, 2019) using the following search terms: (materialism OR materialistic) AND (famil* OR parent* OR mother* OR father*). A total of 436 results were returned, of which 14 were relevant and fit into the construct of "family relationship".

Previous research showed that children who are more materialistic tend to have parents who are more materialistic (Goldberg, Gorn, Peracchio & Bamossy, 2003). Family and peer influence had both been found to be strong predictors of materialism (Ahuvia & Wong, 2002; Roberts, Manolis & Tanner Jr, 2008). Studies that explored the relationship between materialism and a variety of environmental

factors (e.g. advertising, TV viewing, family and peer influence) demonstrated that family and peer influences were more powerful in shaping the attitude and behaviours of children (e.g. materialistic values) than other environmental factors such as advertising on television (Churchill Jr & Moschis, 1979; Lenka, 2016).

Parenting and parental involvement were also found to associate with materialism. For example, Flouri (1999) suggested that satisfaction with one's mother, as well as parental guidance about how to manage money, both predicted materialism in adolescents. In a later study, Flouri (2001) looked at family togetherness in adolescent boys by asking participants how often they watch TV or videos with their family. Results from self-reports showed that family togetherness was inversely associated to materialism. Flouri (2004) explored the role of parenting in children's materialism and showed that although parenting from father was unrelated to materialism, parenting from mother was negatively and inter-parental conflict was positively related to child's materialism.

'Material parenting' is a concept born from research on materialism and parenting. It refers to the use of material rewards or punishments in parents' daily interactions with children. Richins & Chaplin (2015) suggested that material parenting contributes to materialism in adulthood, as material parenting may influence children's values by unintentionally encouraging them to use material possessions in the process of self-definition. The authors also argued that it is often the warm and supportive parents who tend to engage in material parenting by offering children material rewards. Interestingly, this appears to contradict the finding that materialistic adolescents tend to have mothers who are less nurturing (Kasser, Ryan, Zax & Sameroff, 1995).

Family communication style is another important component of parenting. There are two types of family communication styles commonly discussed in the literature: concept-oriented communication, in which parents emphasises opinions, negotiation and individual ideas in social relationships; and socio-oriented communication, in which parents emphasise harmony and deference to others in social relationship (Moschis & Moore, 1979). Research has suggested that parent-child communication on advertising and consumer related issues has an impact on the child's materialistic values. For example, Chia (2010) showed that the adolescents' interpersonal communication with family and friends mediated the relationship between their exposure to advertising and materialistic values. However, direct examination of the relationship between materialism and the two types of family communication showed mixed results. Thus, whilst one study found a relationship between socio-oriented communication and reduced materialistic orientation in young adults (Grougiou & Moschis, 2015), the results of two other studies indicated that concept-oriented communication from parents was related to reduced materialism among children exposed to advertising (Buijzen & Valkenburg, 2005; Chakroff, 2007).

Peer relationship

Peer relationship is another important source of environmental influence on an individual's development. A Psych-info (ovidsp) search was undertaken (January 14th, 2019) using the following search terms: (materialism OR materialistic) AND (friend* OR peer* OR social support). A total of 170 results were returned, of which 11 were relevant.

Past research has provided some insight on how peers may shape an individual's materialism. For example, materialistic adolescents tend to become

friends with those who share their materialistic values (Chaplin & John, 2010), and in turn, whom one befriends has an impact on one's level of materialism (Roberts, Manolis & Tanner Jr, 2008), especially in individuals who are susceptible to peer influence (Dávila, Casabayó & Singh, 2017). There are a number of factors identified from previous research that can be used to understand this reciprocal interaction, such as peer communication around material consumption, peer pressure and social comparison.

Firstly, peer communication around material consumption may influence an individual's level of materialism. One study found a positive and significant relationship between the self-reported amount of peer communication around material consumption during one's adolescence and one's materialism in adulthood in both French and South African young adults (Duh, Benmoyal-Bouzaglo, Moschis & Smaoui, 2015). Another study also noted that the association between adolescents' exposure to media advertising and their materialistic values was mediated by their perception of the advertising effect on friends and their interpersonal communication with friends and family (Chia, 2010).

Secondly, peer pressure may also play a significant role. Materialism in young people was found to be associated with perceived peer-pressure around having the right type of clothes and material possessions (Banerjee & Dittmar, 2008). The authors of this study also found that peer pressure and peer rejection were strongly associated with materialism in elementary school students. Further, supportive peer relationships have been linked to a lower level of materialism (Chaplin & John, 2010).

However, as previously mentioned, self-esteem was often found to play a role in many of the studies of peer influence and materialism (Banerjee & Dittmar, 2008;

Chaplin & John, 2010; Jiang, Zhang, Ke, Hawk, & Qiu, 2015). For example, the study by Jiang, Zhang, Ke, Hawk, & Qiu (2015) showed that participants who recalled experiences of peer rejection reported higher levels of materialism than those who recalled experiences of acceptance. However, this association was mediated by self-esteem.

Thirdly, social comparison with peers may also influence an individual's materialistic orientation. In a study conducted among secondary school students in China, social comparison of consumption (e.g. paying attention to what others buy or own) with peers strongly predicted participants endorsement of materialism (Chan, 2013). In addition to comparisons with friends, social comparisons with media figures were also a positive predictor of materialism (Chan & Prendergast, 2007; Chan & Prendergast, 2008; La Ferle & Chan, 2008).

Intimate relationship

Despite abundant research on family and peer relationships, very few studies have looked at materialism in relation to intimate (romantic/sexual) relationships. A Psych-info (ovidsp) search was undertaken (January 14th, 2019) using the following search terms: (materialism OR materialistic) AND (partner* OR significant other OR intima* OR roman*). A total of 138 results were returned, of which only two studies were relevant.

The first study showed that material rewards, along with attachment security, can have a buffering effect on a specific psychological pain in romantic relationship: romantic jealousy (Selterman, & Maier, 2013). Thus, participants who were guided to visualise receiving care from others (attachment security) or visualise winning a

brand-new computer (material reward) reported lower scores of jealousy in response to a hypothetical jealousy-provoking scenario than the control group. The second study on dating couples showed that materialism is related to poor self-disclosure processes within close relationships (Hui & Tsang, 2017).

Relationships within the Broader Social Context

Community relationship

Even fewer studies have looked at materialism in relation to an individual's relationship to his/her community/neighbourhood. A Psych-info (ovidsp) search was undertaken (January 14th, 2019) using the following search terms: (materialism OR materialistic) AND (community OR neighbo* OR residential OR social capita* OR social connect* OR social fragment*). A total of 203 results were returned, of which only one study was relevant. This study reported that living in neighbourhoods with high socioeconomic status (SES) was associated with increased material desires and maladaptive consumption, such as more frequent impulsive buying, and fewer savings behaviours; and high individual SES, on the contrary, was associated with low material desires and maladaptive consumption (Zhang, Howell & Howell, 2016).

Online relationship

Despite the common notion that capitalistic culture contributes to materialism, it is more difficult to evaluate the direct link between factors in the broader social context and individual materialism. Previous research in this domain has largely focused on media exposure, mainly in the form of TV programming and advertising. The influence of more recent online social network sites (e.g. Facebook and Instagram) have not been well-studied.

A Psych-info (ovidsp) search was undertaken (January 14th, 2019) using the following search terms: (materialism OR materialistic) AND (media OR online OR internet OR Facebook OR social network sites). A total of 234 results were returned, of which seven studies were relevant.

A recent study of 195 participants found that the number of hours spent on Internet usage was positively associated with materialistic values (Rai, Chauhan & Cheng, 2018). A study on 501 young adults showed that a higher usage of social networking sites was associated with a higher tendency of compulsive buying online. This relationship was partially explained by higher identity confusion and higher levels of materialism amongst those who reported higher usage of social networking sites (Sharif & Khanekharab, 2017).

Several studies explored the impact of specific media platforms on materialism. A study on the impact of Facebook showed that increased Facebook consumption was associated with both increased materialism and increased social comparison orientation (Ozimek & Förster, 2017). Another study on the usage intensity of social networking sites, microblogging sites and video sharing sites showed that the frequency of using these sites was positively associated with materialism in both Chinese and American users (Chu, Windels & Kamal, 2016). A study on online gaming showed that online game players' level of materialism was positively associated with their motivation for playing (Chang & Zhang, 2008). Another study exploring the impact of celebrity magazines and celebrity TV news showed that the consumption of both was related to materialism (Lewallen, Miller & Behm-Morawitz, 2016). This effect was partially explained by social comparisons with media figures, which was found to be a positive predictor of materialism. (Chan & Prendergast, 2007).

Consideration of Methods Used

The methods used by previous research on predictors of materialism generally fell in two categories: (1) cross-sectional correlational study, where both materialism and the predictors of interest were assessed via self-report questionnaires; (2) experimental studies, where participants were primed with experimental conditions (e.g. inducing self-esteem by retrieving positive related memories vs. control), and its immediate effect on self-reported materialism was observed. There were very few longitudinal studies, despite the fact that longitudinal studies are more suitable in determining whether changes in the predictive factors result in changes in materialism.

The current study decided to adopt the cross-sectional correlational design for two reasons. First, the timeframe of the current research did not allow for a longitudinal study design. Second, the amount and variety of independent variables of interest made it difficult to conduct experimental manipulation. However, it is hoped that the results of this thesis will inform the direction for future longitudinal and experimental research that aims to explore the underlying mechanism and/or developmental process of materialism.

As the goal of the study was to test the relationship between one dependent variable (materialism) and several independent variables (relationship quality variables), regression analyses were undertaken whilst controlling for age, gender and income as individual-level factors of interest. The current study applied the step-wise regression as it was interested in what combination of independent predictor account for the most variance in the dependent variable (materialism). Further, in step-wise regression, a variable added into the regression are retained only if the

variable significantly increased the fit of the model. This will help the researchers identify the most significant predictor of materialism from the series of relationship variables being examined in the current study.

Aims of the Current Study

As reviewed, in the existing empirical research into materialism and its association with relationships, certain types of relationships have received greater attention. For example, the majority of studies to date have focused on the association between materialism and self-esteem, family and peer related variables. Less research attention has been paid to attachment, intimate relationships, online relationships and relationships to the community. Further, within the studies of family or peer relationships, very few have measured the *quality* of the relationships. Instead, they have tended to focus on specific, isolated characteristics such as parenting, family and peer communication around consumption, peer pressure and social comparisons.

This study was designed to address these gaps and limitations in the literature. The review of previous research indicated a potentially strong link between relationship quality and materialism. A number of existing studies have reported links between materialism and various aspects of different relationship. However, no research, to the authors' knowledge, has investigated the link between the overall *quality* of these relationships and materialism.

The current study was essentially an attempt to understand whether an individual's relationship with material things is connected to their relationships with people. Informed by Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner,

1979), the current study conducted a comprehensive investigation into the role of relationships across a number of different levels including relationship to self, relationship with others (family, peers and intimate partners) and relationship in the broader social context (online and community). By doing a systematic examination of individuals' relationships across multiple levels and using measures of relationship quality, we hoped to test whether and how relationships are related to materialism. The results of the current study may add to our current knowledge on the underlying mechanism of materialism development, which can shed light on future longitudinal research on materialism formation. This knowledge may also contribute to the body of knowledge that could be used to inform the development of intervention /educational programs in addressing the growing materialism among members of the modern society, especially when high levels of materialism are consistently associated with poor mental well-being.

Whilst the theories of materialism development reviewed earlier seemingly view the topic from very different perspectives, there appears to be one commonality –materialism as a compensatory strategy. In the escape theory (Donnelly, Ksendzova, Howell, Vohs, & Baumeister, 2016), materialistic individuals use material consumption to compensate for the unpleasant feelings derived from a dissatisfaction with life; in Inglehart's post-materialism theory (Inglehart, 1990), individuals use materialism to compensate for economic deprivation and insecurity in their formative years; in the socialisation theory, individuals use materialism to compensate for the psychological discomfort resulting from an insecure sense of self; in the symbolic self-completion theory, materialistic individuals use material possessions to compensate for a desired self-definition (e.g. competence) that they

may not yet possess. All theories therefore suggest that materialism compensates for unmet psychological needs.

In addition, both the socialisation theory and the symbolic self-completion theory point towards the key role of self-identify in materialism formation. Further, as mentioned in the literature review section, a convincing number of empirical research studies also reported that self-esteem is closely related to -and predictive of- materialism.

Informed by the theories and literature reviewed above, therefore, this project explored the possibility that high levels of materialism are associated with low levels of relationship quality, both with respect to the individual's relationship to the self, but also, in relationship with others. Specifically, the following hypothesis were tested:

- 1) Self-reported self-esteem will predict scores on a self-report measure of materialism.
- 2) Self-reported attachment difficulties (e.g. anxious / avoidant attachment styles) will predict self-reported materialism.
- 3) Self-reported dissatisfaction in relationships, operationalised at multiple levels, will predict scores on self-reported materialism.

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Part 2: Empirical Paper

Predictors of Materialism in Young Adults:

A Relationship Perspective

Abstract

Aim: To determine how relationship quality, conceptualised across a number of different levels, is related to materialism, including an individual's relationship to self (self-esteem and attachment), relationships with others (family, peers and intimate partners) and relationships in the broader social context (online and community).

Methods: Young adults between 18-30 years old were invited to complete an online self-report questionnaire that assessed materialism, self-esteem, attachment style as well as a number of relationship variables of interest.

Results: Low self-esteem, anxious attachment and poor quality of family relationships were significant predictors of higher level of materialism after controlling for demographic and socio-economic variables.

Conclusion: This study is the first one in the field to investigate how materialism is related to different types of relationships using an overarching theoretical framework, whilst controlling for a number of individual level demographic and socioeconomic factors. These findings contribute to -and address gaps in- the existing literature, as well as emphasise the need for future longitudinal research to explore the underlying mechanisms and development of materialism.

Introduction

Taking a look around, it is evident that material consumption has become an integral part of our lives. Although there is nothing wrong with enjoying the possession of money and nice things, problems seem to occur when material possession is viewed as an important means of achieving happiness and satisfaction.

An individual's orientation to endorse material goods, possessions and financial success can be described as materialism. Materialism has been given multiple definitions by different scholars over time. For example, Belk (1985) first conceptualised materialism as a set of personality traits. Sociologist Inglehart (1990) viewed materialism as an enduring focus on basic needs such as physiological comfort and safety over more advanced needs such as love and belonging, self-esteem and self-actualisation. Kasser & Ryan (1993) saw materialists as placing more importance on "extrinsic goals" that focus on attaining praise and rewards and less importance on "intrinsic goals" such as personal growth, affiliation, and community feeling.

The definition I shall draw upon for this empirical paper is by Richins and colleagues (Fournier & Richins 1991; Richins 1994a, 1994b; Richins and Dawson 1992), which described materialism as a collection of values. Both Beck's and Richin's definitions of materialism and the relevant measures have been widely used in materialism research. However, the Belk scale has received criticism for its inconsistent reliability across studies (Fitzmaurice & Comegys, 2006; Richins & Dawson, 1992; Tatzel, 2003). Therefore, the current study chose the material value scale in the assessment of materialism.

According to Richins and Dawson's value-based definition, materialism consists of three key components: centrality, happiness and success (Richins & Dawson, 1992). Centrality refers to the importance one attaches to material possessions and the belief that such possessions play a central role in one's life; happiness is the belief that owning the desired possessions will lead to one's well-being and that one would be happier with more and better possessions; success refers to the common belief held by materialists that one's success can be judged by the things one owns. Richins (2017) also noted that dividing people into materialists and non-materialists is an over-simplification, as materialism is not a dichotomy, but a continuum ranging from low to high.

Materialism has been historically criticised for having a negative impact on happiness and well-being (see Belk, 1983 for a review). Since the 1980s, evidence from empirical research has accumulated supporting an association between high levels of materialism and low levels of happiness, life satisfaction, physical and psychological well-being; see metanalysis by Dittmar, Bond, Hurst & Kasser (2014) for example. Notably, materialism has also been found to be associated with mental health difficulties. A study reported that materialism was positively correlated with social anxiety among college students (Schroeder & Sanjiv, 1995). Several studies demonstrated that materialism was associated with anxiety and depression (Kasser & Ahuvia, 2002; Kasser and Ryan, 1993; Wachtel & Blatt, 1990). However, despite a consistent finding on the negative association between materialism and various dimensions of well-being, few studies have investigated the direction of causation, i.e. whether a high level of materialism leads to poor wellbeing or whether individuals with poorer well-being tend to be more materialistic (Kasser, Rosenblum, Sameroff, Deci, Niemiec, Ryan & Hawks, 2014)

In addition, less research attention has been paid to factors involved in the development of materialism. An important aspect of materialism is that it is unlikely to be determined by genetics alone. A twin study found that individual differences in materialism were almost entirely attributable to environmental factors -only the “happiness” component of materialism showed a genetic influence (Giddens, Schermer, & Vernon, 2009; Renner et. al, 2012). Findings on the relationship between personality and materialism have also been contradictory (Cai, Shi, Fang, & Luo, 2015; Pilch & Górnik-Durose ,2016; Watson, 2015). If materialism is not well-explained by heritability or personality, it is therefore meaningful and important to investigate how materialism is learned or developed through individuals’ interaction with their environment.

Existing Research on Predictors of Materialism

A variety of factors have been suggested to potentially contribute to an individual’s level of materialism. For example, at the individual level, self-reported materialism was found to be predicted by life dissatisfaction (Donnelly, Ksendzova, Howell, Vohs & Baumeister, 2016; Ku, 2015; Lambert, Fincham, Stillman & Dean, 2009) and loneliness (Pieters, 2013). On an interpersonal level, family structure (Rindfleisch, Burroughs & Denton, 1997) and social comparison with peers (Chan, 2013; Chan & Prendergast, 2007) were implicated as predictors of materialism. However, the direct impact of family structure on materialism has not been consistently replicated due to possible confounding factors such as family resources and socioeconomic status (SES; Roberts, Manolis & Tanner Jr, 2003) . On a socio-cultural level, factors such as societal instability (Kasser, Ryan, Zax & Sameroff,

1995; Twenge & Kasser, 2013) and advertising (Moschis & Moore, 1982; Oprea, Buijzen, van Reijmersdal & Valkenburg, 2014) have also been frequently associated with individual materialism.

Within the diversity of the existing literature on materialism, relationship factors have also received growing research interest. A number of empirical studies that shown an association between interpersonal relationship difficulties and materialism (studies will be reviewed below). One helpful way of understanding an individual's complex network of relationships is by dissecting it into different levels. Inspired and guided by Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979), we divided an individual's relationships into the following categories: relationship to self, family and peer relationships, intimate relationships, relationship to the wider community, and online relationships.

With respect to the relationship-to-self level, self-esteem has been consistently associated with materialism. Thus, correlational studies have demonstrated that individuals with low self-esteem were found to be more materialistic than individuals with high self-esteem (Chan, 2013; Nagpaul & Pang, 2017; Park & John, 2011). In addition, experimental studies showed that experimentally induced (high) self-esteem led to a low level of materialism (Jiang, Zhang, Ke, Hawk, & Qiu, 2015; Liang, Liu, Tan, Huang, Dang & Zheng, 2016); and experimentally induced self-doubt led to a higher level of materialism (Chang & Arkin, 2002). These experimental studies made attempts in addressing issues of direction of causality in materialism research.

Attachment is another key concept in understanding an individual's relationship to self and others. It refers to the intimate bond formed between an individual as a child and the attachment figures (often primary care givers) in the

child's early years, which remains stable overtime and actively affects the individual's later relationships and life experiences (Bowlby, 1969). The three main types of attachment (secure, anxious and avoidant) are known as the attachment styles. Previous studies have shown that experimentally induced attachment security led to a decrease in participants' level of materialism (Sun, Wang, Jiang & Wang, 2018); and that attachment difficulties (e.g. anxious attachment and avoidant attachment) were predictive of high materialism (Kosmicki, 2003; Norris, Lambert, DeWall, & Fincham, 2012).

With respect to the relationship with others level, both family and peer relationships have been studied more extensively. However, previous studies have tended to focus on specific characteristics of family and peer relationships. For example, a variety of family factors has been examined in relation to materialism, such as disruption (e.g. divorce or separation of parents), parenting and family communication styles (See Richins, 2017 for a review). Although a few studies suggested that materialism was associated with poor relationship with one's mother (Flouri, 1999; Kasser, Ryan, Zax & Sameroff, 1995), no study has offered examination of the overall *quality* of family relationships.

Similar to family relationships, previous materialism research has investigated a variety of peer relationship factors, such as peer communication (Chia, 2010; Duh, Benmoyal-Bouzaglo, Moschis & Smaoui, 2015), peer pressure (Banerjee & Dittmar, 2008; Chaplin & John, 2010). and social comparison with peers (Chan, 2013; Chan & Prendergast, 2007; Chan & Prendergast, 2008; La Ferle & Chan, 2008).

Unlike family and peer relationships, intimate relationships, relationship to the wider community, and online relationships have received much less attention in materialism research. A few studies linked materialism with poor marriage quality

(Carroll, Dean, Call & Busby, 2011) and poor self-disclosure processes within close relationships (Hui & Tsang, 2017). Only one study, however, looked at how materialism was related to community and reported that living in wealthy neighbourhoods was associated with increased material desires and maladaptive consumption, such as more frequent impulsive buying, and fewer savings behaviours (Zhang, Howell & Howell, 2016). However, this study was not an examination of community relationships quality. Several recent studies have shown that increased usage of online social networks is associated with increased levels of materialism (Ozimek & Förster, 2017; Rai, Chauhan & Cheng, 2018; Sharif & Khanekharab, 2017) in both Asian and Western cultures (Chu, Windels & Kamal, 2016). However, these studies almost exclusively focused on the usage of social networking sites; no study has looked at if and how one's quality of online relationships is related to users' level of materialism.

In summary, a review of the existing literature has helped identify several gaps in previous research on the association between the quality of an individual's relationships and their level of materialism. First, only a small body of research specifically have investigated the role of attachment styles in materialism. Second, although family and peer relationships have been extensively researched, most studies have tended to focus on specific aspects of family and peer relationships rather than the overall quality of the relationships. Third, certain types of relationships, such as romantic relationships, community relationships and online relationship, have received *very* little research attention. In addition, it remains unclear from previous research which type of relationships show the strongest association with materialism, as previous studies have not attempted to model all these different relationship factors together within a single population sample. It is

also worth noting that, most of the previous studies did not control for individual-level factors that could potentially be related to materialism, such as age, gender, ethnicity and socio-economic factors.

The current study addresses these gaps in the following ways: 1) the study examines relationship variables that have received less attention or been overlooked in previous research (attachment styles, intimate relationships, community relationships and online relationships); 2) by using multiple self-report measures of relationship quality, the study responds to the lack of research on materialism and relationship quality *per se*; 3) the study models a variety of relationship variables together, which facilitates comparison of predictive powers; 4) the study controls for a number of individual-level factors in the analysis, including age, gender, ethnicity and socio-economic status (SES), which helps filter out potential confounding effects.

Aims

The study was interested in young adults as young adulthood is characterised by emerging identity formation and psychological maturation (Erikson, 1968; Arnett, 2000). Young adults in this period of life are typically presented with various and rapid changes (e.g. leaving home, transition from education to employment, beginning to manage own finances). In the course of these changes, young individuals build different types of relationships and acquire a coherent self-identity (Erikson, 1968; Benson & Elder Jr, 2011), which is a developmental process that was in line with the aim and interest of the current study.

The main aim of the current study was to understand how materialism is related to an individual's relationship to self (self-esteem and attachment styles), relationship with others (family, peers and intimate partners) and relationship in the broader social context (online and community). The study hypothesised that high levels of materialism would be associated with low levels of relationship quality, both with respect to the individual's relationship to the self, but also, in relationship with others. It was also tested if these links between materialism and relationship quality hold after controlling for individual level demographics (e.g. age, gender, ethnicity and SES)

The following specific hypothesis were tested:

H1. Higher levels of self-esteem would predict higher levels of materialism.

H2. Attachment difficulties (anxious attachment or avoidant attachment) would predict higher levels of materialism.

H3. Dissatisfaction in relationships, operationalised across a number of different levels, including family relationships, peer relationships, intimate relationships as well as community and online relationships, would predict higher level of materialism.

Methods

Data Collection

The focus of the study was on "young adults". Whilst there is no absolute cut-off between each stage of development, some upper limit had to be chosen. A relatively inclusive upper age limit of 30 years was selected. This was chosen on the basis of a theory of development proposed by psychologist Daniel Levinson (Levinson, Darrow, Klein, Levinson & McKee, 1976), which suggests that early

adulthood comes to a close around age 28-30, after which, they proposed, life becomes more “serious” (known as the “age-thirty crisis”).

The study was advertised primarily through the University College London (UCL) online participant recruitment pool, as well as social media, study flyers and word of mouth. Individuals fulfilling the age criteria (18-30 years old) and who were able to read and understand English were invited to participate in the study. Interested participants followed the link provided on the advertisement, which directed them to the information sheet, consent page on the Qualtrics questionnaire platform, followed by the study questionnaires. All participants were prompted at the end of the questionnaire to send the researcher a separate email to be entered into a prize draw of 100 British pounds. Emails were collected outside the questionnaires to protect the anonymity and confidentiality of the responses.

Measures

The 18-item version of the Materialism Value Scale (MVS) was used to assess materialistic orientation. The MVS was developed by Richins & Dawson (1992 & 2004) and has been widely used in previous materialism research. The measure consists of 18 statements reflecting the three components of materialistic values: centrality, success and happiness. Participants are asked to indicate their level of agreement with each statement using a five-point Likert scale. Possible scores on this measure range from 18 to 90, with higher scores indicating higher levels of materialism. The measure demonstrates good internal consistency (Cronbach's $\alpha=0.80-0.88$) and test-retest reliability (coefficient= 0.87) (Richins & Dawson, 1992).

The Rosenberg Self-esteem Scale (RSS) was used to evaluate individual self-esteem (Rosenberg, 1965). The measure consists of ten items, which are statements of both positive and negative feelings about the self. Participants are asked to indicate their level of agreement with each statement using a four-point Likert-type scale. Possible scores on this measure range from a minimum of 10 to a maximum of 40, with higher scores indicating higher self-esteem. The RSS is a widely used self-report instrument that presented high internal consistency (Cronbach's alpha = 0.77) and test-retest reliability (coefficient=0.90) (Rosenberg, 1965).

The Adult Attachment Scale (AAS) was used to measure the three types of attachment styles: secure, avoidant and anxious (Collin & Read, 1990). The measure consists of 18 items, including six items on each of the three attachment styles. Participants are asked to indicate their level of agreement with each statement using a five-point Likert-type scale. For each of the three subscales possible scores range from a minimum of five to a maximum of 30, with higher scores indicating higher level of attachment security/anxiety/avoidance. Collins & Read (1990) reported acceptable internal consistency (Cronbach's alpha: 0.69 for secure, 0.75 for avoidance, 0.72 for anxiety) and test-retest reliability (coefficient: 0.68 for secure, 0.71 for avoidance and 0.52 for anxiety).

The quality of family and peer relationships were measured using items from the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988). The full scale consists of a total 12 items measuring perceived social support from family, friends and significant others. The current study extracted the two subscales (four items each) of family and friends. Participants are asked to indicate their level of agreement with each statement using a seven-point Likert-type scale. For both family and peer relationship measures, possible scores

range from a minimum of four to a maximum of 28, with higher scores indicating higher family/peer relationship quality. MSPSS was reported to have good internal consistency (Cronbach's alpha: 0.78 for family, 0.85 for friends) and test-retest reliability (coefficient: 0.85 for family, 0.75 for friends).

The quality of intimate relationship was measured using the Relationship Assessment Scale (RAS; Hendrick, 1988). The scale consists of 7 items, measuring an individual's general satisfaction of his/her intimate relationship. Participants are asked to rate on a 5-point scale ranging from 1 (low satisfaction) to 5 (high satisfaction). The final score of the measure is calculated as the mean of the sum of all seven items. Possible scores on this measure range from a minimum of 1 to a maximum of 5, with higher scores indicating higher quality of intimate relationships. RAS was reported to show good internal consistency and good test-retest reliability across diverse ethnicities and age ranges (Hendrick, 1988).

The quality of community relationships was assessed using the Perceived Neighbourhood Social Cohesion Questionnaire (Dupuis et al, 2016). The current study extracted the 10 items designed to measure an individual's trust in and attachment to the neighbourhood he/she lives in. The measure was reported to have good internal consistency - Cronbach's alpha was 0.87 for the trust subscale, and 0.88 for the attachment subscale.

The quality of online relationships was measured using a custom-designed single item question: "*In general, how satisfied are you with your relationships on social media?*". Participants rate on a five-point Likert-scale. Possible scores on this measure range from a minimum of one to a maximum of five, with higher scores indicating higher overall satisfaction with online relationships. This measure has not been tested for validity and reliability. Although the Internet Social Capital Scale

(William, 2006) has been used to assess internet-specific online relationship, the scale was designed to measure social capital, the resources an individual accumulates through building relationship with others, rather than perceived online relationship quality.

Demographics and Socioeconomic Factors

Participants were asked about their age, gender, ethnicity, occupation, income as well as the occupation/s of their parent/s or carer/s. They were given the choice to skip any of these questions if they did not feel comfortable answering them.

However, an answer for age was mandatory, as it used to determine if potential participants were appropriate for inclusion in the study.

Parent / carers' occupations were collected in order to generate estimates of the socio-economic status of each participant's family. All participants were invited to provide the occupations of their two parents/carers where appropriate. Parental occupations were then coded into one of three socioeconomic categories using the National Statistics Socio-Economic Classification system (NS-SEC) (Rose & Pevalin, 2005): (1) managerial and professional occupations, (2) intermediate occupations, (3) routine and manual occupations. A fourth category was created to include those whose parents were unemployed, retired or for whom the data were missing. Coding was conducted using an online Occupation Code Search Tool, developed by the Office for National Statistics (ONS, 2016). The highest occupation level of the two parental occupations was then selected to create the categorical variable "parental occupation".

Data Extraction & Pre-processing

Data were extracted from the Qualtrics questionnaire platform into SPSS. Reverse items were recoded and variables were computed according to the scoring manual / relevant reference for each measure. To check the validity of the data collected, each participant's responses were inspected by the researcher to identify any nonserious answering (e.g. same answer throughout the survey; contradictory responses etc.). Incomplete responses that missed a considerable amount of questions in the survey were excluded from the data set. Participants with a self-reported age higher than the upper age limit were also excluded from further analysis.

Dummy variables

For the purpose of regression analyses, polytomous categorical variables were recoded as "dummy variables" (Garavaglia & Sharma, 1998). Variables transformed for this purpose included income and ethnicity. The following dummy variables were created for income: Less than £10k, £10k-20k, £20k-£40k, £40k-£60k, more than £60k, and N/A / Prefer not to say. The following dummy variables were created for ethnicity: White, Mixed, Asian, Black and Other.

Since a number of participants reported not being in romantic relationships and not using social media, data for romantic and online relationships was not available for a subset of participants. Since this information is informative and should be retained, variables measuring the quality of intimate relationships and online relationships were also transformed into dummy variables for each. For the romantic relationship variable, participants who scored higher than or equal to the median score (3) were categorised into the "high quality" group; those who scored below the median score were categorised into the "low quality" group; and those who were not in a relationship were categorised into a separate group. Therefore, the

following dummy variables were created for intimate relationship: high quality, low quality, and not in a relationship.

Similarly, for the online relationship variable, participants who scored higher than the median score (4) were categorised into the “high satisfaction” group; those who scored below the median score were categorised into the “low satisfaction” group; and those who reported not using social media were categorised into a separate group. The following dummy variables were created for online relationship: high satisfaction, low satisfaction, and neutral/does not use social media.

Data Analysis

Bivariate correlational analysis was first used to test for first-order correlations between variables of interest. One-tailed tests were used since unidirectional predictions were made on the basis of existing literature and theories (see review in introduction). Variables were first tested for normality, linearity and significant outliers using scatterplots and the Shapiro-Wilk's test. Where these assumptions were met, the Pearson's correlation was run; where assumptions were not met, a non-parametric test, Spearman's correlation, was conducted instead. Any violations of assumptions and the choice of correlational test were reported in the Results section.

Following this, regression analyses were undertaken to assess which predictor variables (relationship to self, relationship to others, or relationship within the broader social context) predicted significant variance in the outcome variable (Materialism), and further, to determine whether any such effects persisted after controlling for demographic and socioeconomic factors. Specifically, stepwise regression analysis was used, where multiple predictor variables, including

individual level variables, were included, but only the variables that significantly increase the fit of the regression model were retained.

For each regression analysis, the assumptions for multiple regression were examined. Linearity was assessed by visual inspection of partial regression plots and a plot of studentized residuals against the predicted values. Independence of residuals was assessed by a Durbin-Watson statistic. Homoscedasticity was assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. Multicollinearity was assessed by checking if there were tolerance values greater than 0.1 and if there were studentized deleted residuals greater than ± 3 standard deviations. Significant outliers were assessed by high leverage points or highly influential points measured by Cook's distance. The assumption of normality was assessed by Q-Q Plot. Any violations of these assumptions would be reported in the results section.

Results

Missing and excluded data

A total of 205 responses were recorded, fifteen of which were excluded from further analysis due to incomplete responses (eight) or participants being overage (seven). Consequently, complete case analyses were undertaken on 190 participants. A total of 33 out of the 190 participants did not complete measures of the quality of romantic relationships ($n=26$) and online relationships ($n=7$), because they were not in an intimate relationship or did not use social media. These participants were categorised into dummy variables and entered into the analyses.

Descriptive Analysis

The mean age of the core sample (n=190) was 24.44 years (std=3.41). The ratio of female to male participants was 3.22 (145 females to 45 males). A majority of participants self-identified as White (n=71; 37.4%) or Asian (n=99; 52.1%). Both participants and their parent(s) / carer(s) were predominantly from a highly professional background (n=121; 63.7%). See Table 1 for detailed descriptive data on ethnicity, gender, participant income level and parental occupation level.

Table 1. Key descriptive statistics of individual level variables and main study variables.

Variable	Level	N	Percentage (%)	Mean (std)	Median (range)
Age		190		24.44 (3.41)	25 (18-30)
Gender	Female	145	76.3		
	Male	45	23.7		
Ethnicity	White	71	37.4		
	Mixed	12	6.3		
	Asian	99	52.1		
	Black	4	2.1		
	Other	4	2.1		
Participant annual income	Unemployed or Student	51	26.8		
	Less than £10k	40	21.2		
	£10 -20k	35	18.4		
	£20 -40k	39	20.5		
	£40 -60k	4	2.1		
	More than £60k	6	3.2		
	Prefer not to say	15	7.9		
Parental Occupation Status (the higher one of the two reported occupations)	Higher managerial, administrative professional occupations	121	63.7		
	Intermediate occupations	38	20.0		
	Routine and manual occupations	8	4.2		
	Unemployed, retired or prefer not to say	23	12.1		
Materialism		190		51.63(9.59)	52 (25-78)
Self-esteem		190		28.67(5.40)	29 (13-40)
Attachment	Secure	190		19.66(3.88)	20 (8-29)
	Avoidant	190		16.94(4.51)	17 (6-29)
	Anxious	190		14.99(4.53)	15 (6-28)
Family Peer		190		20.67(6.35)	23 (4-28)
Intimate		190		22.80(4.62)	24 (5-28)
	High quality	86	45.26		
	Low quality	78	41.05		
	Not in a relationship	26	13.7		
Community Online		190		43.93(9.36)	44 (11-66)
	High satisfaction	100	52.6		
	Low satisfaction	83	43.68		
	No online relationship	7	3.7		

Hypothesis 1: Self-esteem and Materialism

A Pearson's correlation was run to assess the relationship between self-esteem and materialism. There was a statistically significant, small, negative correlation between self-esteem and materialism, $r(188) = -.193$ ($p = .004$) indicating that low self-esteem was associated with higher levels of materialism.

A regression analysis was subsequently run to test if the core hypothesis held after controlling for demographic and socioeconomic variables. Specifically, a hierarchical multiple regression was first run including age, gender, ethnicity, participants' income level and parental occupation status, as *a priori* potential confounders (Model 1; Table 2). This model was not significant, $R^2 = .077$, $F(14, 175) = 1.040$, $p = .416$, and no individual demographic or SES variables significantly predicted scores in materialism. Following this, a second model was run, to determine whether the addition of self-esteem (Model 2; Table 2) improved the prediction of materialism over and above that the basic model

The addition of self-esteem to the prediction of materialism (Model 2) led to a statistically significant increase in the proportion of variance explained, R^2 change = $.032$, F change $(1, 174) = 6.202$, $p = .014$, see Table 2. The full model of basic demographics, SES variables and self-esteem to predict materialism (model 2) was not statistically significant, $R^2 = .109$, $F(14, 175) = 1.413$, $p = .146$. Nonetheless, self-esteem still emerged as a significant individual predictor ($\beta = -.191$, $p = .014$; see Table 3), suggesting that the association between self-esteem and materialism held after controlling for demographic and socioeconomic factors.

Table 2. Hierarchical multiple regression predicting materialism from demographic variables, SES variables and self-esteem.

Model	Variables entered	R ²	F	p	F	R ²	p
		change	change	change			
1	Age, gender, ethnicity, income, parental occupation	.077	1.040	.416	1.040	.077	.416
2	Age, gender, ethnicity, income, parental occupation, self-esteem	.032	6.202	.014	1.413	.109	.146

Table 3. Coefficients of all predictors, derived from hierarchical multiple regression predicting materialism from demographic variables, SES variables and self-esteem.

Variables		Model 1		Model 2		
		Beta	p	Beta	p	
Age		-.076	.350	-.031	.711	
Gender		.049	.522	.044	.565	
Ethnicity	White	.279	.272	.334	.184	
	Mixed	.127	.369	.166	.239	
	Asian	.336	.194	.355	.165	
	Black	.198	.060	.199	.055	
Income	Less than 10k	-.080	.339	-.089	.284	
	£10-20k	-.026	.758	-.054	.522	
	£20-40k	-.084	.364	-.102	.265	
	£40-60k	-.055	.465	-.035	.634	
	More than 60k	-.024	.749	-.010	.899	
Parental Occupation	High	-.212	.078	-.228	.055	
	Intermediate	-.119	.281	-.100	.362	
	Routine	-.082	.341	-.083	.325	
Self-esteem					-.191	.014

Hypothesis 2: Attachment and Materialism

A preliminary correlational analysis was run to assess the relationship between each of the three attachment styles and materialism (see Table 4). Secure and anxious attachment scores were not normally distributed, as assessed by Shapiro-Wilk's test ($p < .05$). Consequently, the assumptions for Pearson's correlation were not entirely satisfied. A non-parametric test (Spearman's rank-order correlation) was therefore run instead of a Pearson's correlation.

A series of Spearman's rank-order correlations were run to assess the relationship between materialism and scores for each attachment style (secure, avoidant and anxious). There was a positive correlation between anxious attachment and materialism, $r_s(188) = .183, p = .006$, indicating that anxious attachment style was associated with high level of materialism. Further, this survived a one-tailed test for three multiple comparisons (corrected $\alpha = 0.03$). (Note: a one-tailed test was used since the direction of the correlation was predicted on the basis of existing literature; Kosmicki, 2003; Norris, Lambert, DeWall, & Fincham, 2012). In contrast, materialism was not significantly correlated with scores on the measures of secure attachment ($r_s(188) = .002, p = .492$) nor avoidant attachment ($r_s(188) = .025, p = .365$).

Table 4. Spearman's correlations between materialism and attachment variables.

Spearman's correlations	Secure attachment		Avoidant attachment		Anxious attachment	
	r_s	p	r_s	p	r_s	p
Materialism	.002	.492	.025	.365	.183	.006*

* significant at corrected alpha of 0.03

Next, regression analyses were run to test if this association between materialism and anxious attachment held after controlling for demographic and socioeconomic variables. Specifically, a hierarchical multiple regression was first run including age, gender, ethnicity, participants' income level and parental occupation status, as *a priori* potential confounders (Model 1; Table 5). This model was not significant, $R^2 = .077$, $F(14, 175) = 1.040$, $p = .416$, and no individual demographic or SES variables significantly predicted scores in materialism. Following this, a second model was run, to determine whether the addition of attachment styles (Model 2; Table 5) improved the prediction of materialism over and above that the basic model. A step-wise regression analysis was conducted to determine which attachment style best predict materialism.

Anxious attachment was the only significant variable retained in model 2 as a significant predictor of materialism. The addition of anxious attachment to the prediction of materialism (Model 2) led to a statistically significant increase in the proportion of variance explained, R^2 change = .022, $F(1, 174) = 4.275$, $p = .040$. However, the full model of basic demographics, SES variables and anxious attachment to predict materialism was not statistically significant, $R^2 = .099$, $F(15, 174) = 1.274$, $p = 0.223$. Nonetheless, anxious attachment style still emerged as a significant individual predictor of materialism ($\beta = .158$, $p = .040$; see Table 6), suggesting that the association between anxious attachment and materialism held after controlling for demographic and socioeconomic factors.

Table 5. Hierarchical step-wise regression predicting materialism from demographic variables, SES variables and attachment styles.

Model	Variables entered	R ²	F	p	F	R ²	p
		change	change	change			
1	Age, gender, ethnicity, income, parental occupation	.077	1.040	.416	1.040	.077	.416
2	Age, gender, ethnicity, income, parental occupation, secure, avoidant attachment, anxious attachment	.022	4.275	.040	1.274	.099	.223

Table 6. Coefficients of all predictors, derived from hierarchical step-wise regression predicting materialism from demographic, SES and attachment variables.

Variables		Model 1		Model 2	
		Beta	p	Beta	p
Age		-.076	.350	-.039	.639
Gender		.049	.522	.039	.607
Ethnicity	White	.279	.272	.330	.192
	Mixed	.127	.369	.161	.255
	Asian	.336	.194	.380	.141
	Black	.198	.060	.196	.060
Income	Less than 10k	-.080	.339	-.088	.293
	£10-20k	-.026	.758	-.049	.567
	£20-40k	-.084	.364	-.104	.260
	£40-60k	-.055	.465	-.061	.409
	More than 60k	-.024	.749	-.007	.929
Parental Occupation	High	-.212	.078	-.204	.087
	Intermediate	-.119	.281	-.096	.386
	Routine	-.082	.341	-.090	.292
Attachment	secure			.083	.321
	avoidant			-.092	.267
	anxious			.158	.040

Hypothesis 3: Relationship Quality and Materialism

A correlational analysis was run to assess the relationship between materialism and the various dimensions of relationship quality (see Table 7). As not all variables were normally distributed (as assessed by Shapiro-Wilk's test, $p < .05$) a non-parametric test (Spearman's rank-order correlation) was used instead of a Pearson's correlation. Results showed that materialism was significantly associated with family relationship quality ($r_s = -.190$, $p = .004$) and community relationship quality ($r_s = -.125$, $p = .043$), although only family relationship quality survived after correction for five multiple comparisons with a one-tailed test (corrected $\alpha = .02$). (Note: a one-tailed test was again used since the sign of the correlation was predicted on the basis of existing literature suggesting that materialism was associated with poor relationship quality; e.g. Carroll, Dean, Call & Busby, 2011; Chaplin & John, 2010; Flouri, 1999;).

Table 7. Spearman's correlations between materialism and relationship quality variables. An Analysis of Variance (ANOVA) is also shown for Intimate Relationship Quality since the data are categorical.

Spearman's correlations	Family relationship	Peer relationship	Intimate relationship	Community relationship	Online relationship
			(One-way ANOVA)		
Materialism r_s	-.190	-.065	F=.679	-.125	.066
p	.004*	.187	.254	.043	.186
n	190	190	190	190	183

* significant at corrected alpha of 0.02

Subsequently, a hierarchical multiple regression was run to determine if the association between family relationship quality and materialism held after controlling for demographic and SES variables. Similar as before, a hierarchical multiple regression was first run including age, gender, ethnicity, participants' income level and parental occupation status, as *a priori* potential confounders (Model 1; Table 8). This model was not significant, $R^2 = .077$, $F(14, 175) = 1.040$, $p = .416$, and no individual demographic or SES variables significantly predicted scores in materialism. Following this, a second model was run, to determine whether the addition of relationship quality variables (Model 2; Table 8) improved the prediction of materialism over and above that the basic model. A step-wise regression analysis was conducted to determine which relationship quality variables best predict materialism.

Family relationship quality was the only significant variable retained in model 2 as a significant predictor of materialism. The addition of family relationship quality to the prediction of materialism led to a statistically significant increase in the proportion of variance explained, R^2 change = .040, $F(1, 174) = 7.852$, $p = .006$. However, the full model of basic demographics, SES variables and anxious attachment to predict materialism was not statistically significant, $R^2 = .117$, $F(15, 174) = 1.532$, $p = 0.098$. Nonetheless, family relationship quality still emerged as a significant individual predictor of materialism ($\beta = -.207$, $p = .006$; see Table 9), suggesting that the association between family relationship quality and materialism held after controlling for demographic and socioeconomic factors.

Table 8. Hierarchical stepwise regression predicting materialism from demographic variables, SES variables and relationship quality variables

Model	Variables entered	R ² change	F change	p change	F	R ²	p
1	Age, gender, ethnicity, income, parental occupation	.077	1.040	.416	1.040	.077	.416
2	Age, gender, ethnicity, income, parental occupation, family, peer, intimate, community & online relationship quality	.040	7.852	.006	1.532	.117	.098

Table 9. Coefficients of all predictors, derived from hierarchical step-wise regression predicting materialism from demographic variables, SES variables and relationship quality variables.

Variables	Model 1		Model 2		
	Beta	p	Beta	p	
Age	-.076	.350	-.074	.358	
Gender	.049	.522	.048	.524	
Ethnicity	White	.279	.272	.357	.155
	Mixed	.127	.369	.152	.276
	Asian	.336	.194	.402	.115
	Black	.198	.060	.211	.041
Income	Less than 10k	-.080	.339	-.106	.203
	£10-20k	-.026	.758	-.058	.490
	£20-40k	-.084	.364	-.098	.283
	£40-60k	-.055	.465	-.043	.563
	More than 60k	-.024	.749	-.042	.577
Parental Occupation	High	-.212	.078	-.203	.085
	Intermediate	-.119	.281	-.116	.287
	Routine	-.082	.341	-.106	.213
Family			-.207	.006	
Peer			-.024	.762	
Intimate	high quality			.039	.600
	low quality			.001	.988
	no relationship			-.065	.410
Community			-.115	.150	
Online	high satisfaction			.145	.072
	low satisfaction			-.055	.505
	no relationship			-.130	.084

Final Regression: Self-esteem, Anxious Attachment, Family Relationship

Quality and Materialism

A final stepwise regression was run to see which of the three key predictors identified in earlier regression analyses (self-esteem, anxious attachment style, family relationship quality) was the strongest in predicting materialism.

Results showed a significant model containing self-esteem alone that explained a statistically significant proportion of variance, $R^2 = .037$, $F(1, 188) = 7.278$, $p = .008$. Self-esteem emerged as the only significant individual predictor of materialism ($\beta = -.193$, $p = .008$), suggesting that self-esteem was the strongest predictor of materialism of the three.

Table 10. Stepwise regression predicting materialism from self-esteem, anxious attachment, and family relationship quality.

Model	Variables entered	R^2 change	F change	p change
1	Self-esteem, anxious attachment, family relationship quality	.037	7.278	.008

Table 11. Spearman's Correlations of all main study variables

Variables	Materialism		Atchmt _secure		Atchmt _avoi		Atchmt _anx		Self-esteem		Rship _fam		Rship _peers		Rship _intmt		Rship _comm		
	r	P value	r	P valu e	r	P valu e	r	P valu e	r	P value	r	P valu e	r	P valu e	r	P value	r	P valu e	
Atchmt_sec	.002	.984	1.00																
Atchmt_avo i	.025	.730	-.593 **	.000	1.00														
Atchmt_anx	.183*	.012	-.400 **	.000	.383**	.000	1.00												
Self-esteem	-.235**	.001	.331* *	.000	-.325**	.000	-.481**	.000	1.00										
Rship_fam	-.190**	.009	.353* *	.000	-.270**	.000	-.303**	.000	.350**	.000	1.00								
Rship_peers	-.065	.375	.448* *	.000	-.367**	.000	-.326**	.000	.317**	.000	.455**	.000	1.00						
Rship_intmt (n=164)	-.071	.365	.140	.075	-.290**	.000	-.307**	.000	.344**	.000	.172*	.028	.205**	.008	1.00				
Rship_com m	-.125	.087	.046	.533	-.048	.508	-.197**	.006	.183*	.012	.322**	.000	.195**	.007	.131	.095	1.00		
Rship_onlin e (n=183)	.066	.371	.138	.062	-.096	.195	.051	.490	.082	.272	.202**	.006	.179*	.016	.052 (n=1 57)	.517	.143	.054	

** correlation is significant at the .01 level (two-tailed), * correlation is significant at the .05 level (two-tailed)

Atchmt_sec secure attachment style, Atchmt_avoi avoidant attachment style, Atchmt_anx anxious attachment style, Rship-fam family relationship, Rship_peers peer relationship, Rship_intmt intimate relationship, Rship_comm community relationship, Rship_online online relationship

Discussion

Principle Findings

Consistent with hypothesis one (H1: self-esteem and materialism), both correlation and regression analyses showed that self-esteem predicted a significant proportion of variance in materialism after controlling for individual-level demographics and socio-economic variables associated with the individual and their parent(s) / carer(s). This finding was consistent with a large body of existing research that has demonstrated the association between self-esteem and materialism (e.g. Chan, 2013; Nagpaul & Pang, 2017; Park & John, 2011).

Results of the current study were also in support of hypothesis two (H2: insecure attachment and materialism). Anxious attachment was found to positively correlate with materialism. Further regression analysis showed that, after controlling for individual-level demographics and socio-economic factors, anxious attachment predicted a significant proportion of variance in materialism. This finding was consistent with a previous study that examined the link between anxious attachment and materialism (Norris, Lambert, DeWall, & Fincham, 2012). In contrast, in the data reported here, avoidant attachment was not found to be significantly correlated with materialism. This was different from the findings of a previous study that showed that both anxious and avoidant attachment styles were predictive of materialism (Kosmicki, 2003). It is worth noting that the study by Kosmicki (2003) utilised a different measure in the assessment of attachment styles: the Experiences in Close Relationships Scale (ECR; Fraley, Waller & Brennan, 2000). The ECR is a longer questionnaire (36 items) and more specific assessment of insecure attachment styles than the AAS (used in the current study). It has been reported that the ECR showed better psychometric validity than the AAS. Therefore, it is likely that the

ECR might have provided more accuracy in the examination of avoidant and anxious attachment in Kosmicki's study. The current study did not adopt the ECR due to consideration of questionnaire length and an interest in assessing secure attachment, as the ECR does not assess secure attachment. Future research is necessary to determine whether both anxious *and* avoidant attachment relate to materialism given discrepancies between findings from current and previous research.

In regard to hypothesis three (H3: relationship dissatisfaction and materialism), five different types of relationship were investigated, including family relationships, peer relationships, intimate relationships, community relationships and online relationships. However, correlational analyses showed that only family relationship quality was significantly associated with materialism. Further, regression analysis showed that family relationship quality predicted a significant proportion of variance in materialism after controlling individual-level demographics and socio-economic status. This finding is consistent with the existing literature in showing that family relationship difficulties were predictive of higher level of materialism (Flouri, 1999; Kasser, Ryan, Zax & Sameroff, 1995; see Richins, 2017 for a review;). It further extends the existing research base by demonstrating an association between the overall *quality* of family relationship and materialism rather than specific family characteristics.

Despite existing findings on difficulties in peer relationships and materialism, the current study could not provide evidence confirming or disconfirming the link. Although a previous study has suggested a link between intimate relationship quality and materialism (Carroll, Dean, Call & Busby, 2011), the current study did not detect a significant correlation. This discrepancy between the current and previous finding could be due to various reasons. For example, it is likely that studies that did not find

a significant relationship between materialism and intimate relationship remain unpublished, known as publication bias / the file drawer effect (Song, Parekh, Hooper, Loke, Ryder, Sutton, & Harvey, 2010). The study by Carroll et. al. (2011) used a much bigger sample size (1,734 married couples). It is likely that the strength of the association between intimate relationship and materialism is small, which might have been missed by the current study due to insufficient sample size. In addition, the population sample of the current study was young adults, which was different from the previous study, which recruited married couples. Marriage might be a more committed and stable type of intimate relationship that potentially has more influence on the value systems of couples than intimate relationship among young adults does. No studies have looked into if/ how one's relationship with community and relationship online is related to one's materialism. The current study did not detect a strong or significant relationship.

The final stepwise regression of the three key predictors showed that self-esteem emerged as the strongest predictor of materialism. Looking at the basic correlations between all study variables (Table 11.), it is easy to notice that self-esteem correlated with almost all relationship variables, including attachment variables. This is consistent with previous research findings that self-esteem mediated the relationship between materialism and other relationship variables (e.g. Chaplin & John, 2010; Jiang, Zhang, Ke, Hawk & Qiu, 2015; Nguyen, 2004). It is likely that self-esteem plays a core role in the link between materialism and relationship quality.

Implications of the Findings

The current findings are consistent with several theories that attempt to explain the underlying mechanisms of materialism. For example, the observed links between self-esteem, family relationship quality and materialism are in line with the escape theory (Donnelly, Ksendzova, Howell, Vohs, & Baumeister, 2016). The theory argues that materialistic individuals tend to use the pursuit of materialism as a strategy to escape from the unpleasant reality of their life. For example, individuals who are dissatisfied with themselves (e.g. have low self-esteem) or their quality of life (e.g. relationship difficulties) are likely to focus on material consumption as a way to shift their attention away from these unpleasant life realities, therefore providing an escape.

The association between materialism and family relationships is a more robust one compared with other types of relationships explored here, and is in keeping with the notion that the family plays a vital role in an individual's development of self-identity. The socialisation/reinforcement theory (Richins, 2017) posits that the development of materialism in childhood is especially relevant to the child's experience of creating a secure personal identity and development of satisfactory relationships. Supportive relationships (e.g. positive family relationships) can reduce materialistic inclinations by strengthening self-esteem, which in turn reduces the individual's need to gain social approval through material possession and acquisition. Thus, family relationship and self-esteem are likely to play a collaborative role in influencing materialism.

The link between anxious attachment and materialism is a relatively recent finding that deserves more research attention. Existing literature on insecure attachment has argued that anxiously attached individuals tend to possess a strong

need to gain other's love, attention and support (Mikulincer & Shaver, 2007). It is possible that individuals with anxious attachment view money as a means of attaining other people's love, attention and support therefore. However, a previous materialism study that also found a link between anxious attachment and materialism argued differently (Norris, Lambert, DeWall & Fincham, 2012). They hypothesised that anxiously attached individuals seek substitution for relationships with people with relationships with objects due to their fear of rejection in interpersonal relationship. Although the current study did not obtain direct evidence for or against these hypotheses, future research should look into the potential underlying mechanisms of the link between anxious attachment and materialism now that this link has received further support.

It is interesting that all three significant predictors of materialism (self-esteem, anxious attachment, and family relationship quality) seem to be associated with environmental processes that are close to the centre of Bronfenbrenner's ecological systems model. Self-esteem and attachment both fall into the core individual level; and family relationships fall into the micro-level of an individual's system that reflects an individual's immediate environment and connections. This may suggest that an individual's immediate environment has a stronger influence on his/her level of materialism than the broader socio-cultural context does. However, it is also possible that influences from the broader systems are more difficult to operationalise and measure in research studies.

Further, the three significant predictors all play important roles in an individual's early developmental processes and are known to interact with one other. For example, self-esteem is influenced by the quality of one's family relationship in child development (Richins, 2017); family relationship is closely linked with

attachment formation in the child's early developmental years (Bowlby, 1969); both self-esteem and attachment styles could in turn affect an individual's relationship quality with their family as they grow up. Outside the family context, an anxiously attached individual may experience interpersonal difficulties that lead to decreased self-esteem; and low self-esteem could in turn maintain anxious attachment or contribute to further interpersonal difficulties. These inter-relations suggest that the development of materialism is likely a result of interactions between various individual and environmental factors, rather than be determined by certain key variables in isolation.

Limitations and Direction for Future Research

There are several limitations to the current study. The first major limitation is the *relatively* small sample size, which might have led to small power and the inflation of type II error. The study aimed for a sample of approximately 200 participants, which was calculated based on medium effect sizes. However, results showed that the strength of the relationship between the main study variables (self-esteem, insecure attachment, family) and materialism were small ($.1 < |r| < .3$). It is possible, therefore, that the potential relationship between the other variables (e.g. avoidant attachment; intimate, community and online relationships) and materialism are also small, which could have been missed by the current study due to the small sample size. Nonetheless, the findings reported provide some tentative indication of which factors show more sizeable / robust associations with materialism.

Future studies could also benefit from pathway analyses that test for potential mediating/moderating factors. As mentioned above, self-esteem may well mediate the relationship between family/ peer relationships and materialism (Chaplin & John,

2010). However, a larger sample size would be needed to test this and other related hypotheses.

Another major limitation of the current study is its cross-sectional design, which did not allow for causal inferences to be made. Although the current study showed that self-esteem, anxious attachment and family predicted materialism, the direction of these associations remain unclarified. For example, the study could not distinguish whether materialism develops as a result of poor family relationship quality, or family difficulties are a result of high levels of materialism and lack of focus on non-materialistic values (e.g. interpersonal relationships and personal growth).

A number of studies in the field of materialism research have attempted to study causal relationships by priming participants within the context of an experimental design (e.g. Liang, Liu, Tan, Huang, Dang & Zheng, 2016; Jiang, Zhang, Ke, Hawk, & Qiu, 2015; Chang & Arkin, 2002). However, very little research has adopted a longitudinal design in studying the development of materialism. Future research into materialism is therefore in need of a longitudinal approach, as that would provide ground for causal inferences as to the processes that contribute to the development of materialism.

There is also limitation inherent in the online data collection process. For example, the method itself excludes certain types of participants, such as those who do not have access to internet. Participants might not stay fully engaged throughout the survey, or rush through questions, which would result in nonserious answering and reduced validity of the data. Although steps were taken in the pre-processing stage of the data to help rule out nonserious answering, this remained a potential limitation that is hard to eliminate in online data collection.

Conclusion

This study is the first one in the field to investigate how materialism is related to different types of relationships using an over-arching theoretical framework (Bronfenbrenner's ecological theory), whilst controlling for a number of individual level factors. The findings showed that self-esteem, attachment and family relationship quality were significant predictors of materialism. By examining different relationship variables simultaneously within a single population sample, the current study allowed for comparison of effects and identified family relationship quality as the strongest predictor among all relationship variables. The current study also emphasised the need for future longitudinal research in testing causal relationships and providing further insight as to the underlying mechanisms and development of materialism.

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Part III: Critical Appraisal

The following critical appraisal section consists of description and reflection of undertaking the research project in the course of the doctorate programme. It begins with a brief outline of my background and how it affected me in my choice of a project. The main body of the section centres on reflections on the different stages of the research process, including a series of obstacles that have further shaped the project into the way it was, how and why certain methodological choices were made, and how I think the project could have been improved.

Background

Prior to doctorate training, the socio-cultural context of clinical psychology had always been a strong interest of mine throughout my study and work experience in China, the US and the UK. I believed and witnessed how clinical psychology itself is inseparable from the society and culture that it is embedded in. For example, theories and treatments developed in a western context are not necessarily applicable to populations in non-western societies and cultures; an evidence-based treatment for anxiety may not work for a patient whose anxiety originates from stress and stigma within the societal system.

Mindful of the link between psychological well-being and the socio-cultural context, I wished to participate in a research project that would satisfy this interest when I got on the doctorate programme. Therefore, I decided to work with Dr. Stephen Butler who presented his interest in constructing a project on materialism, a growing social phenomenon that has been reported to closely associate with poor psychological well-being.

Selection and Amendment of a project

A variety of research questions could be asked about materialism. Dr. Stephen Butler encouraged me to dig into the literature of materialism and come up with a few research questions, which had given me freedom in exploring my own interest. After an initial search, I narrowed down my interest on relationship and materialism. Specifically, I planned to investigate the role of family and peer relationships in the development of materialism in adolescents.

The age group of adolescence was chosen mainly because the initial plan was to conduct a secondary data analysis on an existing data set from Dr. Butler's project on adolescents. In addition, the adolescent population had received less research attention in materialism research comparing to adults. Surprisingly, we later found out the data set intended for our secondary analysis disappeared for administrative reasons. After a few unsuccessful attempts in searching for an alternative dataset suitable for my research question, I decided to collect my own data. I reached out to the Anna Freud Centre Schools Network for help with secondary school collaborations. However, this process was more difficult and time-consuming than I had expected. After a period of receiving mixed messages, the AFC school network eventually informed me that they no longer support university research of this kind. Subsequently, I attempted to contact secondary schools directly. However, months were spent on reaching out, following up and problem-solving on encountered issues without much progress.

A number of reasons might have contributed to the slow progress. First, research on adolescents below the age of 16 requires parental consents. My initial research design involved procedures such as sending out parental consents and collecting them back through class teachers, arranging a time for the researcher to

visit schools to hand out the paper questionnaires. Some schools might have found this process time-consuming and complicated. Second, the questionnaire itself was estimated to take about 30-45 minutes to complete, which might have made participation less appealing to the young participants. In addition to these factors of practicality, my motivation for the research project was influenced by my principle research supervisor's resignation from UCL and unexpected life circumstances outside the doctorate programme. Furthermore, as I continued the process of literature review, I discovered that a couple of studies had already examined the link between family/peer relationship and materialism, which affected the value and impact of my own project.

Time flew to the third year as I struggled with which direction to go. Luckily, I finally met my new/current research supervisor Dr. Marc Tibber and we decided to make a series of adjustments to the project. First, the age group of the study was changed to adults given the time-consuming nature of collecting parental consent and the limited time left for data collection. Informed by a previous theory on the potential generational difference on materialism (Inglehart 1971, 1990; Inglehart & Abramson 1994), the age range was further narrow down to young adults only (18-30 years old). Second, we decided to change data collection from face-to-face questionnaire to online surveys with an aim to increase the potential to recruit the target sample size within the time constraints of the project. Third, the initial research hypotheses were further elaborated. Consistent with the original proposal, we investigated social and interpersonal factors that predict materialism. However, informed by Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979) we broadened our line of enquiry to explore the role of interpersonal / social factors beyond family and peer relationships to include intimate relationships, online

relationships maintained through social media networks and community relationship. The variables of interest included not only the ones that have been more widely studied (e.g. family and peer relationship), but also the ones that have not received much/any research attention (e.g. intimate relationship, community relationship, online relationship).

In addition, we also decided to explore the role of the individual's relationship to self through measures of self-esteem and attachment style. Self-esteem was added based on findings from previous research that it was a robust predictor of materialism. The interest in attachment was inspired by a documentary called *Minimalism*, which described materialism as human's attachment to material objects. A guest scholar in this documentary described that human beings form attachment with people, but sometimes these attachments seem to get spilled over to objects, as if they are as important as human relationship (Millburn, Nicodemus & D'Avella, 2016). This documentary inspired me to question whether our attachment to material objects is related to our attachment to people.

In summary, the selection and amendment of the project was a more turbulent process than I had envisaged. This process consumed a large proportion of time on the research timeline, leaving very limited time for data collection, analysis and writing up. Although mentally frustrating at times, these unexpected hurdles reminded me that research is never a smooth journey. They also showed me the difference between being a research assistant and being the lead researcher for one's own project. This experience had taught me that, in addition to having sufficient knowledge and problem-solving skills, it is equally important to stay determined and optimistic when presented with dilemmas. For example, a positive outcome of these

unexpected changes was that the project developed further and became more thoughtful and polished.

The Research Process

Literature Review/Conceptual Introduction

By the time I settled on the final research questions, I have conducted a number of literature searches on various aspects of materialism. Thus, I became more confident on the uniqueness of my own study and the value it might contribute to the literature. In line with my empirical research, I conducted systematic search on different levels of relationship predictors of materialism.

Despite the literature search in the conceptual chapter being fairly comprehensive, a major limitation is that I only had time to focus on the PsychInfo database. Although most of the key studies are present in the search, there was a possibility that I might have missed important studies from other databases. Additionally, although I tried to consider and include all possible search terms, a few might have still been missed. For example, in the search for intimate relationship and materialism, I did not consider terms such as “spouse”, “spousal” or “marriage”.

Research Design

Ideally, a longitudinal study design is more suitable in the investigation of contributing factors of the development of materialism. Most of the previous studies in this field tended to use a cross-sectional in design, which did not allow for inferences on the direction of the relationship. When I first decided to research this direction, I wished to address this gap by adopting a longitudinal design that measures participants at different time points. I ambitiously thought it was possible

over the two years' period intended for the thesis research. As my research process kept running into obstacles along the way, I had to make a different methodological choice.

I decided to sacrifice perfection for practicality by adopting the cross-sectional design. Little did I know that there were more dilemmas await and more methodological choices to make. For example, in the process of searching an appropriate measure for materialism, I discovered that a number of measures were developed based on the different definitions of materialism by different scholars. An early materialism scale designed by Belk (1985) was based on Belk's view that materialism is a combination of personality traits (see conceptual chapter for more detailed description). The Material Value Scale (MVS; Richins & Dawson, 1992) was developed based on their conceptualisation that materialism is a group of values. Both measures use the Likert-type scales to assess participants level of agreement with statements representing different facets of materialism. A later measure, the Aspiration Index (AI), developed by Kasser & Ryan (1993) uses a different methodological approach. Instead of directly assessing participants' rating of materialistic statement, it measures how important materialistic aspirations are in comparison to other aspirations (e.g. interpersonal relationship, personal growth, and spirituality).

All of the three measures above had been widely used in previous materialism studies. Eventually I decided to use the MVS. The MVS was demonstrated to have more consistent reliability across studies than the Belk's scale (Richins & Dawson, 2007). I was tempted to include both the MVS and the AI in my questionnaire, as it would be interesting to measure materialism using two different methodological approaches. However, I decided to only keep the MVS to prevent the full

questionnaire from becoming too lengthy. The choice of measure for attachment styles were also based on the consideration of questionnaire length.

Data Collection

Data collection was a relatively smooth process comparing to other stages of the research. Despite a slow start, I managed to recruit the targeted number of participants after utilizing a variety of advertising methods (e.g. flyers around the campus, on social medias, word of mouth, and the UCL psychology subject pool). I am extremely thankful for my friends living in different parts of the world (e.g. France, the US, China) who helped me advertise the study, which made it possible for me to recruit a total of 205 participants within less than a month.

Initially I was worried about the length of the questionnaire. Despite effort made on shortening the questionnaire as much as possible without sacrificing quality, it was estimated to take 30 minutes to complete. These worries exacerbated when I received a few incomplete responses in the beginning. I started to question if my survey was too redundant or boring to tolerate. Thankfully, as the number of participants went up, I noticed that it took participants an average of 15 minutes to complete. I even received a few positive feedbacks in the email. For example, one participant described that he found the questions “very thought-provoking”; another reported that the questionnaire was interesting and helped him reflect on various aspects of his life.

Analyses

Running the analysis on my own was a somewhat anxiety-provoking task in my mind at first. Although I had some knowledge from the statistics teaching and

had experience with statistical analysis while working as a research assistant prior training, it was my first time carrying out the entire task on my own. Prior to this project, I had never used Qualtrics and was therefore very unfamiliar with the process of scoring and exporting the raw data into SPSS, which did lead to a critical, subsequent mistake.

The analysis itself was not too complicated, as I was familiar with SPSS. With the pressure of the upcoming deadline, I was overly focused on getting the analysis done as soon as possible. However, as I was about to write up my results, my supervisor Marc noticed something strange in the scores and suggested me to check scoring. I followed his suggestion but did not notice anything wrong until he urged me to check by running through every single step (e.g. scoring, downloading and computing variables). To my surprise, the reverse coding items were done incorrectly.

This was an important lesson for me as a doctorate-level researcher. On reflection, I realized this experience was not completely unique to the context. I noticed that this insufficient attention to details had accompanied me since a young age, especially when it comes to numbers. For example, I used to have a tendency to make small calculative mistakes on math problems that I knew how to solve. I kept overlooking this bad habit as it had not caused much trouble. However, this incident had made me more aware how important it is to be extra careful and rigorous in every step of the research process. If my supervisor had not urged me to double-check, I would have missed this significant mistake and reported a very different, and inaccurate, finding.

Write-up

Although I am fairly comfortable with this stage of the research, I did feel more stressed this time due to the limited time left before the deadline. I had two weeks to compose everything together, which induced a considerable amount of pressure. I noticed myself preoccupied with “getting it done” than “presenting it well”. Those two weeks were characterised by nights where I could not sleep due to headaches from working long hours during the day. In addition, with English being my second language, I knew I was more likely to make grammatical errors when I do not have sufficient time for proofreading. Another major challenge was to manage the competing demand of 3 days of clinical work on placement every week. Knowing myself, I tend to get stressed when I cannot devote all my available time to an urgent priority. Having to attend other obligations at the same time felt distracting and energy consuming.

Luckily, I am a person who enjoys pushing her limits and turning stress into speed. I believe a part of me actually preferred having a short period of intensified stress, which pushed me to overcome my usual tendency of procrastination. As a result, I managed to be highly productive within the two weeks of writing.

What I would have done differently

There are a number of ways in which I think the project could have been improved. Some of these have been mentioned in the discussion section of the empirical paper. In addition, I think there are two more worth mentioning. First, I think the conceptualization and operationalization of the “online relationship quality” variable could have been improved. To my knowledge, there was no measure that had been specifically designed to assess an individual’s online relationship

satisfaction/quality. Therefore, a single item measure developed by myself was used in the current study. This meant that the validity and reliability of this measure was untested. Another improvement would be about when asking participants to reflect on their community relationship. The current study asked participants to think about the community that they were currently living in, rather than a community that they had spent most of the time in or was the most meaningful or influential for the individual. It was likely that the community they lived in at the time of the questionnaire was a temporary one (e.g. for international students), in which they didn't feel as belonged or attached to. This might have influenced their scores on self-reported community relationship quality, contaminating the results.

Conclusions

On reflection of the process of my research, I am pleased with the topic that I have chosen. The knowledge gained in this process of materialism has been truly beneficial in my understanding of not only materialism itself, but also my own materialistic orientation and social phenomenon related to materialism in daily life. It drew my attention to an interesting aspect of the broader socio-cultural context (materialism) and showed me how its influence is filtered down to clinical psychology (e.g. how materialism predicts poor psychological well-being); and how clinical psychology in turn plays a role in forming the broader socio-cultural context (e.g. how self-esteem and attachment potentially influence materialism). I am also pleased with the hurdles and obstacles I had to deal with along the way of this research journey, which had helped me grow as not only a researcher but also a person with more patience and perseverance.

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Appendix 1 - Ethics committee response letter and approval of amendment



17th May 2018

Dr Stephen Butler
Research Department of Clinical, Educational and Health Psychology
Division of Psychology and Language Sciences
UCL

Dear Dr Butler

Notification of Ethics Approval with Provisos

Project ID/Title: 12711/001: Materialism and adolescents. Predictors and relationship with well-being

I am pleased to confirm in my capacity as Joint Chair of the UCL Research Ethics Committee (REC) that the data collection element of your study has been ethically approved by the UCL REC until **30th June 2019**.

Ethical approval is subject to the following conditions:

Notification of Amendments to the Research

You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an 'Amendment Approval Request Form'
<http://ethics.grad.ucl.ac.uk/responsibilities.php>

Adverse Event Reporting – Serious and Non-Serious

It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator (ethics@ucl.ac.uk) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

Final Report

At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL's Code of Conduct for Research: <http://www.ucl.ac.uk/srs/governance-and-committees/resgov/code-of-conduct-research>
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

With best wishes for the research.

Yours sincerely



Dr Lynn Ang
Joint Chair, UCL Research Ethics Committee

Cc: Jiayuan Zhao

From: **VPRO.Ethics** ethics@ucl.ac.uk 
Subject: Amendment request to project 12711/001: Approved with proviso
Date: 28 February 2019 at 12:38
To: Tibber, Marc m.tibber@ucl.ac.uk
Cc: Zhao, Lyrid jiyuan.zhao.13@ucl.ac.uk



Dear Marc,

The REC Chair has approved your attached amendment request with the proviso below:

Regarding the online draw, either option that the researcher outlined is fine, to direct respondents to applying for the prize draw. The condition is that participants' e-mail addresses will need to be permanently deleted as soon as the draw is over and participants should be informed of this, i.e. their e-mail addresses will be used only for the purposes of the draw and deleted thereafter. This should be made clear in the information sheet or online platform.

Please take this email as confirmation of that approval, subject to the condition above.

IMPORTANT: For projects collecting personal data only

You should inform the Data Protection Team – data-protection@ucl.ac.uk of your proposed amendments to include a request to extend ethics approval for an additional period.

Also, please note the newly updated wording for Local Data Protection Privacy Notices that appears in Section 14 of the attached template Participant Information Leaflet (PIL). Please update your PIL accordingly, incorporating the relevant link, i.e. health and care research or research studies.

With best wishes for your ongoing research,

Ed

Edward Whitfield MA, MLitt
UCL Research Ethics Administrator
2 Taviton Street,
London WC1H 0BT
E-mail: ethics@ucl.ac.uk
Tel: 020 3108 5417 (Int: 55417)
<https://ethics.grad.ucl.ac.uk/>



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Appendix 2- Participant information sheet



Participant Information Sheet for Young Adults

UCL Research Ethics Committee Approval ID Number: 12711/001

Title of Study:

The Predictors of materialism in Young Adults

Department:

Research Department of Clinical, Educational and Health Psychology

Name and Contact Details of the Researcher:

Jiayuan(Lyrid) Zhao Email:jiayuan.zhao.13@ucl.ac.uk

Name and Contact Details of the Principal Researcher:

Dr. Marc Tibber Email: m.tibber@ucl.ac.uk

Thank you for your interest in the research!

Before you decide whether you want to take part in the online questionnaire, it is important to understand why this study is being done and what will happen in the process. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

1. What is the research's purpose?

The research is interested in the developmental process where we become more or less materialistic. We aim to understand the individual, interpersonal and social factors involved in the development of materialism in young adults. It will provide valuable information about the young adult generation and their development in today's fast-growing capitalistic economy.

2. Who can participate?

Any adult between the age of 18-30 is qualified to take part in the study.

3. Do I have to participate?

You do not have to participate if you do not wish to.

4. What will happen if I choose to participate?

We will ask you to complete the consent form on the next page to show that you agree to take part in the study.

You will then **fill in some questionnaires**. The questionnaires should take about 30 minutes in total to complete. In the questionnaires you will be asked about:

- Age, gender, ethnicity, occupation, your parent's or carer's occupation, annual income and postcode

- Your materialistic values
- Your relationship, friends and family
- How you feel in your neighbourhood and community
- Your use of social media

You will have **the chance to win £100**. All participants will be entered into a prize draw to win £100. Once we have enough participants, we will conduct the prize draw and let you know by email if you have won the prize.

5. What are the possible disadvantages and risks of taking part?

Participation in this study involves a low level of risk, this means that it is highly unlikely that you will experience any negative feelings from answering the questions. If you do experience any discomfort or distress in the process, please terminate the online survey at any time. If the discomfort or distress continues and you feel like you need more help, please do not hesitate to contact the researchers: Lyrid Zhao and Dr. Marc Tibber. Their contact information is at the end of this information sheet.

6. What are the possible benefits of taking part?

As mentioned before, You will have the chance to **win £100**. All participants will be entered into a prize draw.

Whilst there are no other immediate benefits of taking part in the study, your participation will be very valuable in helping us understand the development of materialism in modern society and help shape future research.

7. What if something goes wrong?

For any questions, concerns or if you are not satisfied with how the study is carried out, we encourage you to contact the researchers: Lyrid Zhao and Dr. Marc Tibber. Their contact information is at the end of this information sheet.

8. Will my participation in this project be kept confidential?

The information obtained through the study is strictly confidential and will not be accessed or used by anyone else outside the research team. The questionnaires are anonymous, therefore your name and other identifiable information will not appear anywhere in the data or the report of the study.

Your email address will only be used for the final prize draw and is kept separated from your questionnaire. Your email address will be used only for the purpose of the prize draw and will be permanently deleted as soon as the draw is over.

9. What will happen to the results of the research project?

A report will be written about the results of the study. None of the information we collect will be reported or published with your identifiable information attached in the report.

If you wish to receive a short report of the results of the questionnaire, please email the researcher Lyrid Zhao at jiayuan.zhao.13@ucl.ac.uk, we will send you a report when the study is completed.

10. Data Protection Privacy Notice

The data controller for this project will be University College London (UCL). The UCL Data Protection Office provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk. [UCL's Data Protection Officer is Lee Shailer and he can also be contacted at data-protection@ucl.ac.uk.](#)

If you are concerned about how the data of the study is being processed, please contact UCL in the first instance at data-protection@ucl.ac.uk. [If you remain unsatisfied](#), you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at: <https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/>

11. Who is organising and funding the research?

This research is funded by University College London and organised by the research department of Clinical, Educational and Health Psychology.

12. Contact for further information

If you have any questions concerning this study, we encourage you to contact us by emailing:

Jiayuan(Lyrid) Zhao,
Trainee Clinical Psychologist
Email: jiayuan.zhao.13@ucl.ac.uk

Dr. Marc Tibber
Principle Researcher
Email: m.tibber@ucl.ac.uk

Or addressing a letter to:

Jiayuan(Lyrid) Zhao, Trainee Clinical Psychologist
Research Department of Clinical, Educational and Health Psychology,
1-19 Torrington Place,
London, WC1E 6BT

Please proceed to the next page if you wish to continue.

Appendix 3- Informed consent form



UCL

Consent Form Page (of the Online Survey)

I have read and understood the information sheet about the research.

Yes	No
-----	----

I understand I do not have to take part.

Yes	No
-----	----

I understand I am free to withdraw at any time without giving any reason.

Yes	No
-----	----

I understand that the questionnaire answers I have submitted will be published as a report and I can ask to receive a copy of it.

Yes	No
-----	----

I understand that if any of my words are used in reports or presentations they will not be traced back to me.

Yes	No
-----	----

I understand that my answers will be recorded and kept as a record whilst the study is being conducted, and then destroyed once the study is completed

Yes	No
-----	----

Do you agree to participate in the study?

Yes	No
-----	----

Jiayuan(Lyrid) Zhao
UCL Research Department of
Clinical, Educational and Health Psychology
1-19 Torrington Place, London, WC1E 6BT
jiayuan.zhao.13@ucl.ac.uk

Dr. Marc Tibber
UCL Research Department of
Clinical, Educational and Health Psychology
1-19 Torrington Place, London, WC1E 6BT
m.tibber@ucl.ac.uk

Appendix 4- Study questionnaire



Questionnaire

Thank you for taking part in the study! This questionnaire takes about 30 minutes to complete.

Remember your answers are completely anonymous. There are no right or wrong answers.”

If you are completing this questionnaire online, please click on the answer that describes you the best;

If you are completing the questionnaire on paper, please tick or circle the answer that describes you the best.

1.1. What is your age in years? [] (please type in a number)

5.1. What gender were you assigned at birth?

- Male
- Female
- Prefer not to say

5.2. What gender do you self-identify as now?

- Male
- Female
- Other (please specify: _____)
- Prefer not to say

5.3. What is your ethnicity? (Please choose one)

- White (British; Irish; Any Other White Background)
- Mixed (White and Black Caribbean; White and Black African; White and Asian; Any Other Mixed Background)
- Asian or Asian British (Chinese; Indian; Pakistani; Bangladesh; Any Other Asian Background)
- Black or Black British (Caribbean; African; Any Other Black Background)
- Any Other Ethnic Group
- Prefer not to say

5.4. What best described your current occupational status?

- Unemployed
- Full time student
- Part time student

Employed. Please specify occupation (Type in here): _____

5.5. Please specify your parent/s' or carer/s' occupation/s (or their previous occupation/s if now retired. Alternatively, type in "NA" for "not applicable" if, for example, you had a single carer only).

_____ ; _____.

5.6. What is your annual income?

- Less than £10,000
- £10,000-£20,000
- £20,000-£39,999
- £40,000-£59,999
- More than £60,000
- Not applicable (if unemployed)
- Prefer not to say

5.7. What is the postcode of your current address? (Please type in one answer).

_____.

(We are going to ask you a bit more about living in this area later in the questionnaire)

2. The Material Value Scale:

Please read each statement, then select how strongly you agree or disagree with them.

2.1. I admire people who own expensive homes, cars, and clothes.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.2. Some of the most important achievements in life include acquiring material possessions.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.3. I don't place much emphasis on the amount of material objects people own as a sign of success.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.4. The things I own say a lot about how well I'm doing in life.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.5. I like to own things that impress people.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.6. I don't pay much attention to the material objects other people own.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.7. I usually buy only the things I need.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2.8. I try to keep my life simple, as far as possessions are concerned.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.9. The things I own aren't all that important to me.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.10. I enjoy spending money on things that aren't practical.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.11. Buying things gives me a lot of pleasure.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.12. I like a lot of luxury in my life.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.13. I put less emphasis on material things than most people I know.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.14. I have all the things I really need to enjoy life.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.15. My life would be better if I owned certain things I don't have.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.16. I wouldn't be any happier if I owned nicer things.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.17. I'd be happier if I could afford to buy more things.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2.18. It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3. Adult Attachment Scale

3.1. I find it difficult to allow myself to depend on others.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.2. People are never there when you need them.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.3. I am comfortable depending on others.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.4.I know that others will be there when I need them.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.5.I find it difficult to trust others completely.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.6.I am not sure that I can always depend on others to be there when I need them.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.7.I do not often worry about being abandoned.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.8.I often worry that my partner does not really love me.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.9.I find others are reluctant to get as close as I would like.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.10. I often worry my partner will not want to stay with me.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.11. I want to merge completely with another person.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.12. My desire to merge sometimes scares people away.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.13. I find it relatively easy to get close to others.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.14. I do not often worry about someone getting close to me.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.15. I am somewhat uncomfortable being close to others.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.16. I am nervous when anyone gets too close.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.17. I am comfortable having others depend on me.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.18. Often, love partners want me to be more intimate than I feel comfortable being.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

4. The Rosenberg Self-esteem Scale

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

5.1. On the whole, I am satisfied with myself.	Strongly disagree	Disagree	Agree	Strongly agree
5.2. At times I think I am no good at all.	Strongly disagree	Disagree	Agree	Strongly agree
5.3. I feel that I have a number of good qualities.	Strongly disagree	Disagree	Agree	Strongly agree
5.4. I am able to do things as well as most other people.	Strongly disagree	Disagree	Agree	Strongly agree
5.5. I feel I do not have much to be proud of.	Strongly disagree	Disagree	Agree	Strongly agree
5.6. I certainly feel useless at times.	Strongly disagree	Disagree	Agree	Strongly agree
5.7. I feel that I'm a person of worth, at least on an equal plane with others.	Strongly disagree	Disagree	Agree	Strongly agree
5.8. I wish I could have more respect for myself.	Strongly disagree	Disagree	Agree	Strongly agree
5.9. All in all, I am inclined to feel that I am a failure.	Strongly disagree	Disagree	Agree	Strongly agree
5.10. I take a positive attitude toward myself.	Strongly disagree	Disagree	Agree	Strongly agree

5. The Multidimensional Scale of Perceived Social Support

The following questions ask about your relationships with family, friends and a significant other:

5.1. My family really tries to help me.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.2. I get the emotional support and help I need from my family.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.3. My friends really try to help me.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.4. I can count on my friends when things go wrong.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.5. I can talk about my problems with my family.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.6. I have friends with whom I can share my joys and sorrows.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.7. My family is willing to help me make decisions.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
5.8. I can talk about my problems with my friends.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree

6. Intimate relationship: Relationship Assessment Scale

<p>6.1. Are you currently in a relationship? → If yes, How long have you been in the relationship? (Please type in a number) _____ months</p> <p>→ If no, Have you ever been in a relationship? → If yes, How long has it been since your last relationship? ((Type in a number) _____ months; If no, go to 7.1</p>					
6.2. How well does your partner meet your needs?	Low 1	2	3	4	High 5
6.3. In general, how satisfied are you with your relationship?	Low 1	2	3	4	High 5
6.4. How good is your relationship compared to most?	Low 1	2	3	4	High 5
6.5. How often do you wish you hadn't gotten in this relationship?	Low 1	2	3	4	High 5
6.6. To what extent has your relationship met your original expectations?	Low 1	2	3	4	High 5
6.7. How much do you love your partner?	Low 1	2	3	4	High 5
6.8. How many problems are there in your relationship?	Low 1	2	3	4	High 5

7. Perceived Neighbourhood Social Cohesion Questionnaire

At the beginning of the questionnaire, we asked about your postcode. Now we would like to ask you a bit more about how you feel about living at your current address.

7.1. Most people in this area can be trusted.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.2. People would be afraid to walk alone after dark.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.3. People in this area will take advantage of you.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.4. If you were in trouble, there are lot of people who would help you.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.5. People in this area would do something if a house was being broken into.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.6. In this area people would stop children if they saw them vandalizing things.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.7. I really feel part of this area.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.8. Most people in this area are friendly.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.9. People in this area have lots of community spirit.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree
7.10. People in this area do things to help the community.						
Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly Agree	Agree	Strongly Agree

8. Social media Intensity Scale

<p>8.1. Do you use social media? Yes → please continue to 8.2; No → WOULD YOU MIND SAYING BRIEFLY WHY NOT, before you continue to the end of the questionnaire?</p>					
<p>8.2. Which social media sites do you use most regularly? (Please list up to three).</p>					
<p>8.3. In the past week, on average, approximately how many minutes per day have you spent on social media? <input type="checkbox"/> 0 = less than 10, <input type="checkbox"/> 1 = 10–30, <input type="checkbox"/> 2 = 31–60, <input type="checkbox"/> 3 = 1–2 hours, <input type="checkbox"/> 4 = 2–3 hours, <input type="checkbox"/> 5 = more than 3 hours</p>					
8.4. Social media is part of my everyday activity.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.5. I am proud to tell people I'm on social media.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.6. Social media has become part of my daily routine.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.7. I feel out of touch when I haven't logged onto social media for a while.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.8. I feel I am part of the social media community	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.9. I would be sorry if my favourite social media site shut down	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

8.10. I use social media to connect with offline contacts.	Never	No often	Sometimes	Often	Almost always
8.11. I have used social media to check out someone I met socially	Never	No often	Sometimes	Often	Almost always
8.12. I use social media to learn more about other people in my classes	Never	No often	Sometimes	Often	Almost always
8.13. I use social media to learn more about other people living near me	Never	No often	Sometimes	Often	Almost always
8.14. I use social media to keep in touch with my old friends	Never	No often	Sometimes	Often	Almost always
8.15. I use social media to meet new people.	Never	No often	Sometimes	Often	Almost always
8.16. In general, how satisfied are you with your relationships on social media?	Unsatisfied	Somewhat unsatisfied	Neutral	Somewhat satisfied	Satisfied
8.17. When comparing yourself to others on social media, to	Not at all	Slightly	Moderately	Very	A great deal

what extent do you focus on people who are better off than you?					
8.18. When comparing yourself to others on social media, to what extent do you focus on people who are worse off than you?	Not at all	Slightly	Moderately	Very	A great deal