

# Coping with Loneliness Through Materialism: Strategies Matter for Adolescent Development of Unethical Behaviors

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**Abstract** Engaging in unethical consumption behaviors is an acute societal problem that can have severe consequences for adolescents, and businesses in particular have been accused of making such consumption particularly appealing and accessible. However, the causes of unethical behaviors are not well understood and research on the causes has been mixed. In this research, we investigate the effects of coping strategies for loneliness on adolescents' adoption of unethical behaviors, a topic that business ethics research has not explored. In a large-scale study ( $n = 409$ ) of adolescents (ages 13–17), we show that whether loneliness leads to the adoption of unethical behaviors depends on the strategies adolescents use to cope with their loneliness: active coping strategies are associated with fewer unethical behaviors, whereas passive coping strategies are associated with more unethical behaviors. In addition, we show that active and passive coping strategies can be executed through consumption practices. We show that the relation between active coping and fewer unethical behaviors is mediated by sharing of possessions, whereas the relation between passive coping strategies and more unethical behaviors is mediated by product acquisition.

Finally, we also show that these mediated relations differ as a function of age cohort (grade level). The indirect effect of active coping on fewer unethical behaviors via sharing holds only for middle school adolescents, whereas the indirect effect of passive coping on more unethical behaviors via product acquisition holds only for high school adolescents. We shed new light on both the bright and dark sides of materialism and unethical behaviors and provide practical implications for research on loneliness, business ethics, and unethical behaviors.

**Keywords** Loneliness · Coping strategies · Unethical behaviors · Adolescent consumers · Materialism · Sharing · Age cohort

## Introduction

Engaging in unethical behaviors is a societal problem that can have severe consequences. For example, global losses attributed to fraud and abuse total \$3.7 trillion (Report to the United Nations 2014). Similarly, the societal costs of substance abuse have been estimated at over \$700 billion annually, and Americans in particular lose about \$100 billion in gambling each year (Centers for Disease Control and Prevention 2014; US Department of Health and Human Services 2014; see Jamieson and Mendes 2016). Adolescents are particularly vulnerable, as the majority of substance use is initiated during adolescence (Wills et al. 1996). Eighty-five percent of adolescents engage in cheating behaviors before graduating from high school (NBC News 2012). The onset of multiple unethical behaviors, such as smoking, anti-social behavior, hazardous alcohol consumption, and unprotected sexual intercourse are more prevalent during adolescence than

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during childhood or adulthood (Kipping et al. 2012; Steinberg 2008). The ESCAPAD Survey on Drug Use (2015) recently reported that more than 65 % of European adolescents have tried smoking and 30 % smoke daily, 90 % of adolescents have tried alcohol, 13 % of them drink regularly, and 49 % have tried marijuana.

What causes adolescents to adopt unethical behaviors? One common explanation for unethical behavior is impulsivity and lack of self-control or willpower (Botvinick et al. 2001; Metcalfe and Mischel 1999; de Vries et al. 2011; Zhang and Shrum 2009). People may want to behave morally, but they also have impulses for immediate gratification, which in some cases involves unethical behavior. Self-control is required to overcome these impulses, and self-control depletion can result in decreased ethical awareness (Baumeister and Alghamdi 2015; Gino et al. 2011). For example, low trait self-control in children is associated with increased likelihood of criminal arrest (Gottfredson and Hirschi 1990). Experimental studies that have manipulated self-control show similar results. When participants' self-control was depleted, they were more likely to cheat on a problem-solving task, and this effect was mediated by reduced moral awareness (Gino et al. 2011). Businesses in particular have been accused of making the consumption of unhealthy products such as alcohol, tobacco, and sugar-laden foods overly tempting and easy to consume (O'Loughlin et al. 2014; Schor 2004; US Department of Health and Human Services 2012), prompting regulatory restrictions on advertising, labeling, and product packaging.

Although cognitive factors such as self-control undoubtedly influence unethical behaviors, in this research, we investigate the influence of social factors. Researchers investigating problem behaviors (unethical, risky) are increasingly focusing on emotional factors, particularly ones that arise from social interactions and the stress that results from social evaluations (Jamieson and Mendes 2016; Steinberg 2007, 2008). Adolescents are especially cognizant of social feedback and reactive to social stress relative to adults (Harter et al. 1998; Westenberg et al. 2009) and children (van den Bos et al. 2014).

In this research, we investigate the effects of a common but acute source of social stress—loneliness—on the adoption of unethical behaviors among adolescents. Prior research on the link between loneliness and unethical behavior is actually mixed. A large body of research has demonstrated that loneliness in adolescents increases unethical behavior because they think it will facilitate group acceptance (Banerjee and Ditmar 2008; Cacioppo and Patrick 2008). However, a number of studies have also shown the opposite: loneliness can promote pro-social behavior in an attempt to rebuild social connections (Cacioppo and Hawkey 2009; DeWall et al. 2009; Lee and Shrum 2012).

Reconciling the discrepancies in research linking loneliness and unethical behaviors is hampered because remarkably little research has focused on the underlying explanatory mechanisms, both in terms of *how* loneliness and unethical behaviors are related and *why* they are related (Twenge et al. 2007; Vanhalst et al. 2013). This research attempts to address this gap. We focus on identifying key mediators of the relation between loneliness and unethical behaviors, with the goal of developing an integrative framework that links loneliness, coping strategies for loneliness, and unethical behaviors during adolescence. We propose that the relation between adolescent loneliness and their adoption of unethical behaviors depends on the strategies they employ to cope with loneliness (Compas et al. 2001; Vanhalst et al. 2012). Specifically, we propose that the adoption of active coping strategies that directly address the problem of loneliness reduces the adoption of unethical behaviors. In contrast, the adoption of passive coping strategies that avoid or distract from the problem of loneliness increases the adoption of unethical behaviors. The introduction of coping strategies for loneliness can potentially explain conflicting findings on the relation between loneliness and unethical behaviors.

However, we also go one step further by linking the different coping strategies with different types of consumption practices. In particular, we propose that two different types of materialism are associated with passive versus active coping. The more traditional conceptualization of materialism centers on product acquisition as a means of fulfilling personal needs (e.g., Kasser 2002; Richins and Dawson 1992), which we propose represents a passive coping strategy. In contrast, more recent conceptualizations of materialism incorporate notions such as sharing and experiential consumption (cf. Belk 2014; Shrum et al. 2013), which we propose represent active coping strategies. Thus, we suggest that the adoption of active coping strategies via sharing materialism is associated with reduced unethical behaviors, whereas the adoption of passive coping strategies via product acquisition materialism is associated with increased unethical behaviors. The overall theoretical model incorporates coping strategies in response to loneliness not only in the context of unethical behaviors, but also in a larger context of materialism that incorporates two types of variables—sharing and product-centered materialism.

Finally, we also test for age cohort differences in the mediated relations between loneliness and unethical behaviors. Our investigation focuses on adolescents. Because the transition from early to late adolescence (e.g., secondary school to high school) is particularly challenging because it often requires establishing new relationships and losing old ones (Chaplin and John 2010), we expect that the

effects may differ between middle school and high school adolescents.

We report the results of a large-scale study ( $n = 409$ ) of adolescents (ages 13–17) that links feelings of loneliness with the development of particular coping strategies for loneliness, the development of material values, and the development of unethical behaviors. More specifically, we propose and test an integrative model (sequential mediation) in which loneliness influences coping strategies for loneliness (active and passive), which in turn influence two types of materialism (materialism by sharing possessions and materialism by acquiring products), which differentially influence unethical behaviors. We also show that these effects are moderated by age cohort (educational grade). We not only demonstrate the bright and dark sides of loneliness on unethical behaviors, through coping strategies for loneliness and materialism, but also enrich our theoretical model by incorporating the coping strategies for loneliness and different forms of materialism as mediators of the relation between loneliness and unethical behaviors. In doing so, we integrate several different lines of research on the antecedents of adolescent unethical behaviors.

We argue that this research has important implications for business ethics. First, as noted earlier, unethical behavior is most often attributed to lack of self-control and for the most part ignores other possible causes. Consequently, remedies focus on adding incentives for self-control and frequently take the form of punishments. However, such punishment remedies have a poor track record in terms of reducing unethical behavior, as evidenced by high recidivism rates for incarcerated individuals (Saris et al. 2016) and the still-frequent incidence of corporate fraud despite the often catastrophic personal and institutional outcomes (e.g., Enron, Bernie Madoff, etc.). Thus, pinpointing other causes of unethical behavior and their underlying causes provides an alternative for potential interventions to reduce unethical behavior, which is important to businesses given the high cost of ethical misconduct.

Second, although our research focuses on adolescents, it has implications for the ethical behavior of business executives. As others have noted (Tang and Chen 2008), business executives likely do not suddenly become unethical once they reach positions of power. Rather, these tendencies were developed at much younger ages, consistent with the research on the onset of unethical behaviors in adolescence (Gentina et al. 2015a, b, 2016a, b; Wills et al. 1996). Worse is that adopting unethical behaviors can be considered a rite of passage for adolescents in today's society (King 2008). Thus, our research not only potentially applies to understanding the causes of unethical behavior in adolescents, but also has implications for the root causes of unethical behavior in business.

## Theoretical Development

### Loneliness

Loneliness is an aversive state that motivates people to take actions to alleviate it (Cacioppo et al. 2006). Several conceptualizations of loneliness have been developed (for a review, see Cacioppo et al. 2006). For example, one perspective views loneliness in terms of deficiencies in social relations that prevent important functions such as attachment and social integration (Weiss 1973). A second perspective focuses on deficits in social skills that impede the development of social relationships (for a review, see Marangoni and Ickes 1989). A third perspective views loneliness as individuals' subjective perceptions of deficiencies in their network of social relationships (Peplau and Perlman 1982). A fourth conceptual approach views loneliness as an aversive state that signals lack of sufficient social connections, which can prompt efforts to increase inclusive fitness (Cacioppo et al. 2006).

Collectively, these perspectives of loneliness share three common points (Peplau and Perlman 1982): loneliness results from actual or perceived deficiencies in a person's social relationships, it is a subjective psychological phenomenon of dissatisfaction with the quality or quantity of social connections, and it is distressing. The first three perspectives focus primarily on how deficiencies in social skills impede the development of social relations. The fourth perspective views loneliness as a signal to individuals that may allow them to take positive steps to increase the quality and quantity of their social relations. We draw on both perspectives to show alternative ways in which people cope with loneliness.

Although loneliness affects individuals of all ages, it is particularly prevalent during adolescence (Qualter et al. 2013; Rokach and Neto 2000). At any given time, about 20 % of people feel sufficiently isolated and experience loneliness (Cacioppo and Patrick 2008), and almost 80 % of adolescents report feeling lonely at some time (Rönka et al. 2014). Developmental changes that take place during adolescence may elevate the risk of social isolation by increasing the chances that experiences are perceived as socially isolating and thus contribute to loneliness (Brennan 1982; Rubin et al. 2008). Adolescence is a crucial time when adolescents construct their social identity by seeking social belonging to peer groups and exerting their social status and dominance among their peers (Gentina and Chandon 2013; Gentina et al. 2016a). The transition from secondary to high school is particularly challenging for adolescents because they must create new social relationships and try to reshape existing ones (Chaplin and John 2010). Adolescents can no longer rely solely on their

existing social network of friends and thus must deal with social changes in a setting where they may be the youngest and least important members of the school, which may increase feelings of loneliness (Kenny and Sirin 2006; Oswald and Clark 2003). Given the particular vulnerability that teens have to loneliness and its aversive effects and the developmental importance of preventing bad habits as early as possible, we chose to focus our research on adolescents.

### Loneliness and Unethical Behaviors

Psychologists have investigated the relation between loneliness and unethical behaviors, with mixed results. For example, a substantial literature shows that loneliness is associated with more unethical behaviors (e.g., underage smoking and alcohol use, drug use, Internet addiction; Cacioppo and Patrick 2008; Canham et al. 2015; Huang et al. 2014; Özdemir et al. 2014). These behaviors serve as a coping function for managing feelings of isolation and loneliness by creating an illusion of friendship and togetherness (Akerlind and Hornquist 1992). Unethical behaviors emerge from a fear of peer rejection, and adolescents engage in them because they believe that the behaviors facilitate their acceptance by the group and thus will decrease their feelings of loneliness (Banerjee and Ditmar 2008).

However, other researchers have found the opposite: loneliness can stimulate pro-social behaviors in an attempt to rebuild social connections (DeWall et al. 2009; Lee and Shrum 2012; Maner et al. 2007; Mead et al. 2011). For example, when participants were induced to feel socially excluded, they showed an increased desire to work with others and assigned greater rewards to their interaction partners (Maner et al. 2007), donated more money to charity and were more willing to help others (Lee and Shrum 2012; Lee et al. 2016), and spent more money in an effort when it facilitated affiliation with others, compared to those who did not feel socially excluded.

### Coping Strategies for Loneliness

Coping refers to the use of cognitive and behavioral strategies for dealing with pressures, demands, and emotions in response to distress (Lazarus and Folkman 1984). Within this framework, two opposing perspectives explain how individuals react to perceived loneliness (Vanhalst et al. 2015). The first perspective (the loneliness reduction, or active perspective) posits that a frustrated need to belong provides an impetus for individuals to actively seek to reduce need frustration and increase need satisfaction. From this perspective, loneliness serves a signaling function indicating a lack of social connectedness, which

motivates individuals to regain social connection (Cacioppo and Hawkey 2009). The reduction perspective of loneliness has been explained in terms of evolutionary theory (Cacioppo et al. 2006), social reconnection theory (Maner et al. 2007), social pain (MacDonald and Leary 2005), and the behavioral-motive perspective on the need to belong (Sheldon and Gunz 2009).

The second perspective (the loneliness perpetuation, or passive perspective) posits that loneliness reduces sensitivity to the potential benefits of situations that may satisfy the need to belong (e.g., social inclusion). Lonely individuals are vigilant towards social threat, which leads them to perceive the social world as threatening and to react strongly to negative events. Lonely individuals may thus believe that they will benefit less from social inclusion and suffer more from social exclusion, which may decrease their motivation to seek out social interactions, and ultimately contribute to their loneliness (Vanhalst et al. 2015).

These two perspectives suggest very different coping strategies. Active and passive coping strategies are available mechanisms that lonely adolescents may employ in an attempt to mitigate loneliness (Compas et al. 2001). Active coping strategies directly address the problem. Examples of active coping strategies for loneliness include addressing the problem directly by taking steps to develop more social relationships, being more attuned to others' perspectives, or changing behaviors that others find unattractive. In contrast, passive coping strategies are used to avoid the problem. Examples include avoiding social contact in order to distract oneself from the problem and seeking other activities to replace social interaction.

Given that both active and passive coping strategies are both ways in which adolescents can cope with loneliness, we expect that loneliness will be positively correlated with each:

**H1a** Loneliness will be positively related to the adoption of passive coping strategies.

**H1b** Loneliness will be positively related to the adoption of active coping strategies.

### Coping with Loneliness and Materialism

Within the active versus passive strategy framework, there are multiple avenues for coping. People may actively cope with loneliness by reaching out to others to reconnect and build a social support network, or cope passively through distraction or solitary events such as watching television or reading a book (Seepersad 2004). One way people can cope with loneliness (and self-threats in general) is through consumption (Rucker and Galinsky 2008). For example, when people feel lonely through social isolation or exclusion, they may try to achieve social connection (active

strategy) by conforming their consumption to others (Mead et al. 2011) or donating time and money to help others (Lee and Shrum 2012). Alternatively, people may cope with loneliness by substituting possessions to compensate for lack of social connections (Clark et al. 2011; Mikulincer and Shaver 2008; Rindfleisch et al. 1997).

There is a shared belief among academics that there is a clear relation between loneliness and materialism (cf. Fournier and Richins 1991; Griffin 2010; Kasser 2002; Schwartz 2000), and this belief is also shared by lay persons (Pieters 2013). However, there is relatively little empirical evidence linking loneliness and materialism. One exception is research reported by Pieters (2013). A 6-year longitudinal study showed that feelings of loneliness contribute to materialism, but that this link depends on the type of materialism. Loneliness increases materialism that is associated with signaling success and with increasing happiness, but loneliness is unrelated to the general importance of possessions in people's lives. These results suggest that the motivation for materialism may relate to how effective it is for coping with self-threats (Shrum et al. 2013).

Our research applies similar logic but a different perspective. We focus on two subtypes of materialism that play different roles in the development of adolescents' ethical behaviors: materialism as product acquisition and materialism as sharing of possessions. Materialism as product acquisition is the traditional form of materialism that reflects the importance that people place on possessions (Richins and Dawson 1992). For children and adolescents in particular, materialism is "an emerging value centering on acquisitiveness. It includes the desire to buy and own things, the enjoyment of these objects, the desire for money to enable these purchases, and even the desire for jobs that can secure the money necessary for purchases" (Goldberg et al. 2003, p. 280). Research from this perspective has typically focused on the negative consequences of materialism that may result from an emphasis on products over experiences because it is used as a substitute for, or displaces, social connectedness (Kasser 2002; Lane 2000).

However, more recent conceptualizations of materialism have adopted a more expanded view that incorporates more than just product acquisition, such as sharing of possessions and experiential consumption (cf. Belk 2010, 2014; Shrum et al. 2013; Van Boven and Gilovich 2003). Although sharing of possessions is not typically considered to be materialistic behavior, it fits with the view of materialism as symbolic self-completion (Wickland and Gollwitzer 1982). These conceptualizations of materialism are also more agnostic regarding its effects and consider that the utility of materialistic behaviors is a function of the

underlying motivations for it (Rucker and Galinsky 2008; Shrum et al. 2013).

We propose that materialism can be used for either passive or active coping strategies for loneliness. More specifically, we propose that adolescents who engage in passive coping strategies are more likely to compensate for their loneliness through the possession of objects (materialism as product acquisition). Passive coping strategies for loneliness refer to passive behaviors that can perpetuate the state of loneliness. Possessing objects can be described as static behaviors that do not involve active pro-social behaviors (e.g., sharing). Most research on materialism views the effects of materialism on well-being as predominantly negative and centered on product acquisition. Product acquisition serves at least three purposes in terms of passive coping. For one, it may serve as a distraction from the current problem, a sort of "retail therapy" to escape aversive states (Atalay and Meloy 2011, p. 638). Second, lonely people may use products and brands, particularly nostalgic ones, as a means to reconnect with the past (Loveland et al. 2010). Third, lonely people may use brand connections to substitute for human ones (Dommer et al. 2013; Min 2012). Thus, we predict that:

**H2** Passive coping strategies will be positively related to materialism as product acquisition.

In contrast, active coping strategies attempt to directly solve the problem of loneliness or cope with loneliness in an active fashion. Thus, when adolescents use active coping strategies for loneliness, we suggest that lonely adolescents are more likely to engage in active pro-social behaviors by seeking to reconnect with others through sharing practices. Materialism through sharing is consistent with newer conceptualizations of materialism that view materialism as the extent to which people engage in identity maintenance and construction through not only acquisition of products, but also use of products and experiences perceived as providing positive symbolic value (Shrum et al. 2013). Although business ethics researchers have investigated sharing in the form of information (Granitz 2003; Granitz and Ward 2001), to the best of our knowledge, no research has looked at the relation between ethics and sharing of possessions.

Sharing of possessions serves a number of different purposes in terms of active coping. Most pertinent to the current research, sharing of possessions facilitates social inclusiveness. For example, members of close social groups share possessions in order to establish social connections, whereas more isolated individuals tend to avoid sharing but resort to borrowing (Gentina 2014). In this respect, sharing of possessions actively addresses the problem of loneliness by facilitating social relations. Thus, we predict that:



**H3** Active coping strategies will be positively related to materialism as sharing of possessions.

### Materialism and Unethical Behavior

There is a substantial literature showing a positive relation between materialism as product acquisition and the adoption of unethical beliefs and behaviors, but relatively less research connecting sharing of possessions and unethical beliefs and behaviors. In the next two sections, we review previous research on each to develop our hypotheses.

#### *Product Acquisition Materialism and Unethical Beliefs*

As noted, materialism as product acquisition refers to the importance that people place on material goods and the central place possessions hold in people's lives (Muncy and Eastman 1998). Because of the high importance that possessions hold for materialists, materialistic people may be willing to violate ethical rules in order to gain more possessions (Muncy and Eastman 1998; Richins and Dawson 1992). Materialism as product acquisition is self-centered, and thus those higher in materialism may be more positive toward unethical actions that increase their gains (e.g., passive benefiting at the expense of sellers, actively benefiting from deceptive practices; Rafi et al. 2013). Numerous studies support this reasoning, providing evidence that materialism as product acquisition is positively correlated with the holding of unethical beliefs and engaging in more unethical behavior (Arli and Tjiptono 2014; Lu and Lu 2010; Muncy and Eastman 1998; Rafi et al. 2013). In addition, to the extent that materialism as product acquisition serves as a passive coping strategy in response to loneliness (H2), it is more likely to prolong or even exacerbate the problem, which can lead to a variety of problematic behaviors (Compas et al. 2001; Vanhalst et al. 2012). Thus, we predict that:

**H4** Materialism as product acquisition will be positively related to unethical behavior.

#### *Sharing Materialism and Unethical Behavior*

There is remarkably little research that has addressed the direct relation between sharing of possessions and unethical behavior. This paucity of research is understandable, given that sharing of possessions, in the context of consumer behavior, is a relatively recent construct (Belk 2010). However, Gentina et al. (2015b) demonstrated a dark side of sharing in the context of academic cheating (moderated by culture). In their research, sharing is viewed as an egoistic act, turned toward individuals themselves, whose objective is to maintain a central social position,

which provides them with many benefits—popularity, power, prominence, and influence.

In the business ethics literature, most research has overwhelmingly focused on sharing as a generous act, without any expectation of reciprocity. This conception of “pure” sharing develops positive social ties (Granitz 2003; Granitz and Ward 2001), promotes trust among workers (Lin 2007) and favors inter-employee helping (Lin and Joe 2012). According to Granitz (2003), individuals who share in individual and social determinants are more likely to share in ethical reasoning.

Despite the lack of research on the relation between sharing and unethical behavior during adolescence, we propose that sharing of possessions will be related to fewer unethical behaviors. We base this proposition on the following. First, compared to product acquisition materialism, sharing is for the most part an other-oriented behavior. Sharing serves to develop positive social ties, strengthen and maintain friendships (Belk 2010), encourages helping (Lin and Joe 2012), and facilitates socialization (Gentina 2014; Granitz 2003; Granitz and Ward 2001). More importantly, despite the conflicting findings just discussed, no research has investigated materialism as sharing of possessions as a means of coping with loneliness. This distinction is important. We have proposed that sharing represents an active coping strategy in response to loneliness (H3). Active coping strategies are associated with a reduction in problem behaviors resulting from loneliness, and as we reviewed earlier, loneliness is associated with increased unethical behavior (Cacioppo and Patrick 2008; Canham et al. 2015; Huang et al. 2014; Özdemir et al. 2014). To the extent that materialism as sharing of possessions represents an active coping strategy for loneliness (H3), the sharing of possessions should be negatively related to the adoption of unethical behaviors. Thus, we hypothesize that:

**H5** Materialism as sharing of possessions will be negatively related to unethical behavior.

### Sequential Mediation Hypotheses

Summarizing, previous research suggests that loneliness influences the development of unethical behaviors, although the results are mixed. We propose that loneliness is related to the adoption of unethical behaviors, but that the relation between the two depends on the coping strategies for loneliness that people adopt. Active coping strategies such as sharing of possessions should reduce unethical behaviors, whereas passive coping strategies should increase them. Thus, we propose two sequential mediations:

**H6** The relation between loneliness and unethical behaviors is mediated sequentially by adolescents' adoption of passive coping strategies for loneliness and materialism as product acquisition.

**H7** The relation between loneliness and unethical behaviors is mediated sequentially by adolescents' adoption of active coping strategies for loneliness and materialism as sharing possessions.

The proposed mediation model is shown in Fig. 1. We point out two particular aspects of the model. First, we have provided no hypothesis for the relation between loneliness and unethical behaviors for two related reasons. As we have noted, the previous research on this relation has been mixed, with some research showing positive effects whereas others show the opposite. Thus, previous theory and research provide little guidance. More importantly, we in fact propose that the effects of loneliness on unethical behavior will not only differ as a function of which coping strategies are adopted, but that loneliness will have opposite effects on unethical behaviors, depending on the coping strategy. If so, then the two mediational paths may effectively cancel each other out, which would be the case if the opposing mediation effects were of equal strength, yielding a simple correlation of zero between loneliness and unethical behavior.

The second aspect of Fig. 1 that we would like to note is the paths we do not expect to be significant. For example, if materialism as sharing represents an active form of coping, as we propose, then it should have no relation to passive coping strategies. Similarly, if materialism as product acquisition represents a passive coping strategy, then it should have no relation to active coping strategies.

### Differential Effects as a Function of Age Cohort (Grade Level)

The transition from primary school to middle is predominantly challenging for adolescents as they struggle to create new relationships, preserve existing contacts, and restructure existing ones (Chaplin and John 2007). We chose to focus our research on adolescents because values and value systems begin to form in this developmental period. In addition, adolescence is a time when social connections start to be established and self-concepts begin to take shape. However, important developmental changes also occur *within* the period of adolescence. For example, compared to late adolescents, early adolescents have a greater need for social belonging, exhibit higher levels of social conformity to group norms, and need more social support from their peers (Berndt 1979). Thus, activities and behaviors that foster such social ties should be particularly strong during middle school.

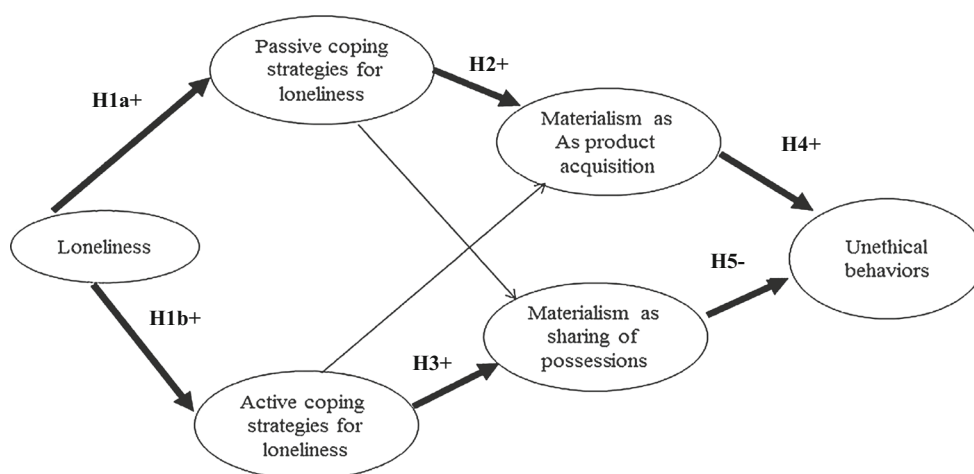
Sharing of possessions is one such behavior. Sharing of possessions is other oriented, and serves to develop positive social ties, strengthen and maintain friendships (Belk 2010), encourage helping (Lin and Joe 2012), and facilitate socialization (Gentina 2014; Granitz 2003; Granitz and Ward 2001). Thus, when adolescents enter into middle adolescence, they may engage in sharing practices as a way to cope with feelings of loneliness (Gentina 2014). Indeed, when adolescents share possessions with their peers at school, they interact directly with others and participate in joint events, an active coping strategy that directly addresses the problem of loneliness.

In contrast, late adolescence marks a period when other aspects of the self-concept begin to emerge. In particular, when adolescents enter high school, they have a greater sense of self-identity and act more independently than younger ones (Berndt 1979). Moreover, adolescents use materialistic possessions for the purposing of asserting their self-identity (Chaplin and John 2005) and signaling distinctiveness (Piacentini 2010). Materialism as product acquisition is more of an individualistic approach (compared to materialism as sharing of possessions). Adolescents use materialistic possessions to gain power and status, and avoid loneliness (Banerjee and Dittmar 2008), which represents more of a passive coping strategy that does not directly address the problem of loneliness.

Given these important changes that occur within adolescence and their implications for coping with loneliness, we also tested the hypothesis that the mediation effects we have hypothesized may show different patterns or strength of effects, depending on age cohort (operationalized as grade level). We use grade level, rather than actual age, because prior research suggests that grade level is a more relevant criterion than age to understand differences in teenage consumer behavior; Haytko and Baker 2004). Specifically, because sharing plays a potentially stronger role for middle school adolescents than for high school adolescents and represents an active coping strategy, we expect that the indirect effect of Active Coping Strategies for Loneliness → Materialism as Sharing Possessions → Fewer Unethical Behaviors will be stronger for middle school than for high school adolescents:

**H8** The indirect effect of active coping on unethical behavior through sharing materialism will be stronger for middle school adolescents than for high school adolescents.

Conversely, because material possessions are potentially more important for high school adolescents than for others and represent a passive coping strategy, we expect that the indirect effect of Passive Coping Strategies for Loneliness → Materialism as Product Acquisition → More Unethical Behaviors will be stronger for high school than for middle school adolescents:



**Fig. 1** Proposed sequential mediation model. Non-bolded path errors indicate relations expected to be non-significant

**H9** The indirect effect of passive coping on unethical behavior through acquisition materialism will be stronger for high school adolescents than for middle school adolescents.

We next report the results of a large-scale study of adolescents that tests these hypotheses.

## Method

### Participants and Procedure

Participants were 409 adolescents (223 girls, 186 boys) from an urban region in northern France. The participants were students in grades 8–10 at three public and private schools whose selection was based on their willingness to provide access for the study. The sample was distributed across 14 school classes: 198 students from grade 8, 102 students from grade 9, and 109 students from grade 10. Ages ranged from 13 to 17 years, with an average of 15.2 years.

A researcher administered the questionnaire in each classroom during regular class hours. The study took approximately 1 h to complete and was conducted in the presence of a teacher (for keeping order in the classroom) and the researcher. All participants provided assent, and all parents provided consent. Participants were assured that all information provided was strictly confidential and that completed questionnaires would never be shown to anyone except the researcher. Next, participants were given a questionnaire as part of a study to learn what adolescents think about various consumer-related issues. The survey was part of a large-scale project on adolescent social networks. Participants completed measurement scales related to loneliness, coping strategies, materialism, sharing,

unethical behaviors, and relevant socio-demographic data (age, gender, and grade), in that order. After completing the study, participants were debriefed, thanked for their participation, and asked not to discuss their responses with classmates.

### Measures

All established scales were translated from English into French using the parallel-blind technique (Brislin 1980). Loneliness was measured using the 8-item short version (Roberts et al. 1993) of the revised UCLA Loneliness scale (Russell et al. 1980). The items were measured along a 5-point scale (1 = strongly disagree, 5 = strongly agree). Examples of items are “I lack companionship” and “I feel isolated from others.” The scale has demonstrated good psychometric properties among samples of adolescents (Goossens et al. 2014) and across cultures (Higbee and Roberts 1994).

We measured active and passive coping strategies using subscales of the Utrecht Coping Questionnaire (Schreurs et al. 1988). We transformed the general instruction of this questionnaire into a specific loneliness instruction that asked participants how they behaved, or what they thought, when feeling “left out, lonely, or not supported.” Both subscales contained seven items measured along a 5-point Likert-type scale (1 = never, 5 = very often); higher scores indicate more use of that specific coping style. The active scale contains items such as “I act immediately” and “I consider the problem a challenge,” whereas the passive scale contains items such as “I isolate myself from others completely” and “I feel unable to do anything.” The scale has demonstrated reliability and validity for both adults (Schaufeli and van Dierendonck 1992) and young students (Vanhalst et al. 2012).



We measured materialism with Goldberg et al.'s (2003) 10-item Youth Materialism Scale (1 = strongly disagree, 5 = strongly agree). Examples of items are "I would be happier if I had more money to buy more things for myself" and "I would love to buy things that cost a lot of money." The scale has demonstrated good psychometric properties (internal consistency and validity) among samples of adolescents across cultures (Chaplin and John 2007, 2010).

To measure sharing practices with others, we proceeded in two stages prior to the actual study. First, semi-structured interviews were conducted with 10 adolescents, who were asked "What are the objects that you share more often with others at school?" From these interviews we created a set of the 10 most commonly shared possessions. The 10 shared objects were books, chat sessions (e.g., Skype), class notes, clothing accessories (e.g., belt, scarf), drinks, electronics, music/game files, snacks, sports equipment (e.g., ball, racquet), and T-shirts. Second, we conducted a survey of 150 adolescents in which we asked them to indicate the frequency with which they share these 10 objects with their classmates, measured on a 5-point scale (1 = never, 5 = always). The three objects that were the most shared ( $M$ 's > 3.5) were selected for analyses (books, class notes, and electronics).

Finally, unethical behavior was measured using the normative deviance scale (Vazsonyi et al. 2001), which is composed of nine items that measure the frequency of various unethical behaviors along a 5-point scale (1 = never, 5 = always), and which form three subscales (alcohol use, drug use, and school misconduct). The scale has demonstrated good psychometric properties (Vazsonyi et al. 2001; Vazsonyi and Snider 2008), including with the samples of French adolescents (Gentina et al. 2015a).

## Results

### Tests of Measurement Models

All items passed the test of univariate quasi-normality (Kline 2005), which allowed for exploratory and confirmatory factor analyses. The first stage involved statistical refinement, using principal components factor analyses with oblique rotation, because of the presumed correlations among the construct's dimensions. Items with communalities below .40 and cross-loadings greater than .30 were eliminated (Kline 2005). This process yielded a 6-factor structure with the remaining 33 items, and all Cronbach's alphas were acceptable. The factors, individual items, and alphas are shown in Table 1.

Next, we confirmed the scales' factor structures and assessed their reliability and convergent and discriminant

validities (Gerbing and Anderson 1988). We estimated the purified scales simultaneously in a multiple-measurement model. Confirmatory factor analyses (using AMOS) replicated the six-scale structure. The 6-factor model fit the data well ( $\chi^2 = 1235.865$ ,  $df = 480$ ,  $p < .05$ , root mean square error of approximation [RMSEA] = .06, goodness-of-fit index [GFI] = .90, comparative fit index [CFI] = .90, adjusted  $\chi^2 = 2.57$ , and standardized root mean residual [SRMR] = .05). The composite reliability coefficients (Jöreskog  $\rho$ ) were satisfactory.

Convergent validity is indicated by the strength of the factor loading of each observed measure on its proposed latent variable. The metric for each scale was established by fixing the coefficient for one indicator to 1.00 for each factor. Each item evidenced highly significant  $t$  values, ( $t$ 's > 5.866) and the squared multiple correlations, representing the proportion of item variance accounted for by the assigned common factor ( $\rho_{vc}$ ) for all 33 items, exceeded 50 %, indicating that convergent validity ( $\rho_{vc} > .50$ ) was achieved (Gerbing and Anderson 1988). We assessed discriminant validity by confirming that each latent factor extracted more variance from its indicators ( $\rho_{vc}$ ) than it shared with all others constructs (Fornell and Larcker 1981). Table 2 summarizes the resulting 33-item measurement model.

### Common Method Variance

Because we used self-reported questionnaires to collect data at the same time from all the adolescent participants, common method variance may be a concern. Common method variance refers to variance attributable to shared measurement methods rather than to the constructs themselves and thus represents measurement error (Podsakoff et al. 2003).

To test for common method variance, we first adopted Harman's (1967) single-factor test. We conducted an exploratory factor analysis with all measured items and examined the unrotated factor solution. The amount of variance explained by the first factor was 25.40 %, followed by five other factors: 13.13, 7.99, 7.48, 6.21, and 4.56 %, respectively. The analysis of the six scales also met unidimensionality because each construct accounts for at least 50 % of the total variance in the data (Kline 2005).

Second, we used the Common Latent Factor method, which consists of introducing a new latent common variable factor in a way that all observed items are related to it. Common method variance is not considered a problem if the addition of the new common latent factor does not significantly improve the fit of our model. It did not improve model fit, as the two models did not significantly differ ( $\Delta$ RMSEA = .00 and  $\Delta$ CFI = .01;  $p < .05$ ; Cheung

**Table 1** Measurement scales

Measure	Items	Mean	SD
Loneliness ( $\alpha = .795$ )	I feel in tune with the people around me <sup>a</sup>	2.46	1.10
	I lack companionship	1.73	1.05
	I feel left out	1.72	1.89
	I feel isolated from others	1.87	1.15
	I can find companionship when I want to <sup>a</sup>	1.74	1.08
	People are around me but not with me	1.951	1.18
Active coping strategies for loneliness ( $\alpha = .703$ )	I act immediately	3.60	1.13
	I consider the problem a challenge	3.64	1.15
	I act goal-directedly in resolving the issue	2.40	1.22
Passive coping strategies for loneliness ( $\alpha = .701$ )	I isolate myself completely from others	2.58	1.16
	I look at matters pessimistically	1.56	1.01
	I am fully absorbed by the problem	3.04	1.32
	I feel unable to do anything	3.23	.92
Materialism as product acquisition ( $\alpha = .934$ )	I would rather spend time buying things than doing almost anything else	2.18	1.11
	I would be happier if I had more money to buy more things for myself	3.02	1.28
	I have fun just thinking of all the things I own	2.94	1.26
	I like to buy things my friends have	2.79	1.25
	When you grow up, the more money you have, the happier you are	2.97	1.27
	I would love to be able to buy things that cost lots of money	3.11	1.30
	I really like the kids that have very special games or clothes	2.93	1.27
	The only kind of job I want when I grow up is one that gets me a lot of money	2.97	1.22
Materialism as sharing of possessions ( $\alpha = .705$ )	I share my classroom notes with my classmates	3.14	1.07
	I share electronics (chargers and cables, USBs, calculators...) with my classmates	1.82	.96
	I share my books with my classmates	2.87	1.17
Unethical consumption behaviors ( $\alpha = .895$ )	I drink alcohol	2.11	1.40
	I lie about my age to buy alcohol or cigarettes	2.47	1.36
	I smoke	2.08	1.15
	I cheat on school tests (e.g., cheat sheet, copy from neighbor, etc.)	2.84	1.10
	I am sent out of a classroom because of "bad" behavior (e.g., inappropriate behaviors, cheating, etc.)	2.77	1.17
	I stay away from school/classes when my parent(s) think I am there	1.91	1.18
	I am in trouble at school so that my parents receive a phone call about it	1.86	1.19
	I intentionally damage or destroy property belonging to a school	2.25	1.24
I get drunk (intentionally) just for the fun of it	3.05	1.09	

<sup>a</sup> Indicates items that are reverse-scored

and Rensvold 2002), indicating common method variance is not a problem.

### Measurement Invariance Across Age

We also checked for configural (factor structure) and metric (factor loading) invariance across age using multi-group confirmatory factor analyses with the two educational cohorts (middle and high school adolescents). Our model achieved configural invariance (RMSEA = .03,

TLI = .94, CFI = .94, GFI = .93, adjusted  $\chi^2 = 1.47$ ). Next, to test for metric invariance, we set all the factor loadings for the model to be the same across age cohorts in a constrained multi-group confirmatory factor analysis. This analysis showed satisfactory fit (RMSEA = .03, TLI = .94, CFI = .94, GFI = .93, adjusted  $\chi^2 = 1.43$ ). Metric invariance is shown when the constrained and unconstrained models do not differ. They did not differ, ( $\Delta\text{CFI}/\Delta\text{RMSEA} < .01$ ), indicating that metric invariance is demonstrated.

**Table 2** Results of the 6-factor CFA model: goodness-of-fit indices, reliability, and validity

Construct	Item	Standardized factor loading	<i>t</i> value	Reliability (Jöreskog Rho)	CV	DV passive coping	DV active coping	DV sharing of possessions	DV materialism as acquisition	DV loneliness	DV unethical behaviors
Unethical behaviors	x1	.66	<sup>a</sup>	.89	.50						X
	x3	.54	8.80								
	x3	.62	10.14								
	x4	.79	10.90								
	x5	.79	11.22								
	x6	.73	11.24								
	x7	.78	10.70								
	x8	.54	9.14								
	x9	.75	11.14								
Loneliness	x10	.58	<sup>a</sup>	.85	.50					X	.00 (.07)
	x11	.79	8.82								
	x12	.52	7.34								
	x13	.85	9.01								
	x14	.85	9.01								
	x15	.56	5.86								
Materialism as acquisition	x16	.40	<sup>a</sup>	.81	.60				X	.03 (.19)	.17 (.41)
	x17	.87	8.86								
	x18	.97	8.88								
	x19	.70	8.15								
	x20	.48	6.96								
	x21	.56	7.47								
	x22	.98	8.90								
	x23	.98	8.90								
Sharing of possessions	x24	.63	<sup>a</sup>	.76	.52			X	.00 (−.01)	.00 (−.04)	.00 (−.08)
	x25	.66	6.67								
	x26	.86	8.90								
Active coping	x27	.70	<sup>a</sup>	.755	.508		X	.02 (.16)	.00 (.01)	.03 (.19)	.00 (−.09)
	x28	.76	7.58								
	x29	.66	6.40								
Passive coping	x30	.78	<sup>a</sup>	.80	.51	X	.22 <sup>b</sup> (.47) <sup>c</sup>	.00 (.08)	.04 (.20)	.01 (.14)	.00 (.06)
	x31	.70	7.05								
	x32	.71	7.10								
	x33	.64	5.88								

CV convergent validity, DV discriminant validity

<sup>a</sup> This item is used to provide the scale to the related construct

<sup>b</sup> Shared variance among trait factors

<sup>c</sup> Correlations among trait factors

### Test of the Structural Models

Given the acceptable fit of the measurement model, we proceeded to hypothesis-testing. However, we first tested the simple relation between loneliness and unethical behavior. Although we provided no formal hypothesis regarding this relation, given that previous research has provided conflicting findings, we use this as a first step

before testing the mediation models. We tested this relation by regressing unethical behaviors on loneliness. Loneliness was positively related to unethical behaviors ( $\beta = .08$ ;  $t = 1.99$ ,  $p < .05$ ,  $R^2 = .007$ ). However, this relation was small.

To test our hypotheses, we first tested the full conceptual model with AMOS using maximum likelihood estimation. The normed Chi square is below 5.0 ( $\chi^2/df = 2.86$ ), and

other fit measures ( $\chi^2 = 1302.95$ ,  $df = 485$ ,  $p < .001$ ; adjusted  $\chi^2 = 2.68$ , IFI = .90, TLI = .90, CFI = .90, RMSEA = .06, SRMR = .05) also indicate a good model fit.

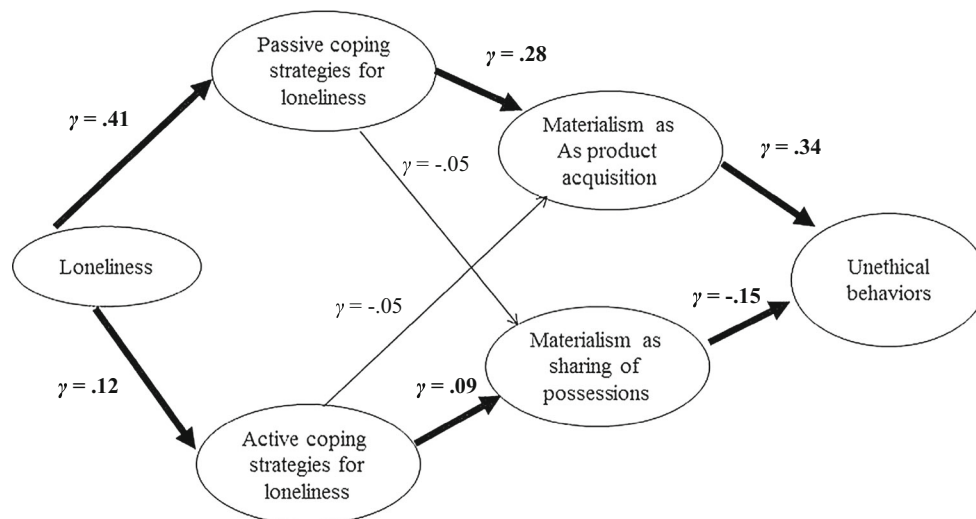
We next examined the relevant path coefficients to test our hypotheses. We predicted that coping strategies (active vs. passive) and materialism (sharing possessions or acquisition of objects) would mediate the relations between loneliness and unethical behaviors. Specifically, we predicted two sequential mediation paths between loneliness and the adoption of unethical behaviors as a function of coping strategies. We expected that loneliness would be positively correlated with the adoption of both passive (H1a) and active (H1b) coping strategies. We also expected that the adoption of passive strategies to cope with loneliness would lead to increased materialism through product acquisition (H2), which in turn would lead to the increased adoption of unethical behaviors (H4). In contrast, we expected that the adoption of active strategies to cope with loneliness would lead to increased materialism through sharing (H3), which in turn would lead to the adoption of fewer unethical behaviors (H5).

The results of these analyses are shown in Fig. 2 and provide support for these predictions. Both passive ( $\gamma = .41$ ;  $t = 2.75$ ,  $p < .05$ ) and active ( $\gamma = .12$ ;  $t = 2.42$ ,  $p < .05$ ) coping strategies were positively related to loneliness, supporting H1a and H1b. However, only passive coping strategies were associated with materialism as product acquisition ( $\gamma = .28$ ;  $t = 2.79$ ,  $p < .05$ ), whereas only active coping strategies were associated with materialism as sharing ( $\gamma = .09$ ;  $t = 2.23$ ,  $p < .05$ ), supporting H2 and H3. In addition, the lack of significant relations between passive coping and sharing materialism, and between active coping and product acquisition materialism,

confirm our expectations that sharing and product acquisition materialism represent distinct coping strategies via consumption. Finally, materialism as product acquisition was associated with more unethical behaviors ( $\gamma = .34$ ;  $t = 7.23$ ,  $p < .001$ ), whereas materialism as sharing was associated with fewer unethical behaviors ( $\gamma = -.15$ ;  $t = -2.01$ ,  $p < .05$ ), supporting H4 and H5. Thus, the two coping strategies produced opposite outcomes in terms of the adoption of unethical behaviors via different types of materialism.

To test the sequential mediation hypotheses, we followed Preacher and Hayes' (2008) recommendations for testing multiple mediators and employed bootstrapping methods (see also Zhao et al. 2010). Bootstrapping is the most powerful method of obtaining confidence limits for specific indirect effects (Preacher and Hayes 2008). In particular, we used Preacher et al.'s (2007) procedure (model 6) and computed bias-corrected bootstrap confidence intervals. We then used Hayes' (2013) SPSS macro to compute regression equations and estimated the mediator variable models, using coping strategies for loneliness (active and passive) and materialism (sharing of possessions and product acquisition) as the respective sequential mediators, enabling us to estimate indirect effects by bootstrapping methods (1000 bootstraps). We conducted separate analyses for each mediational path.

The results of these analyses can be seen in the top portion of Table 3. If the bootstrapped confidence interval does not include zero, the indirect effect is significant and sequential mediation is supported. As Table 3 indicates, both H5 (Loneliness  $\rightarrow$  Passive Coping Strategies  $\rightarrow$  Materialism as Product Acquisition  $\rightarrow$  More Unethical Behaviors) and H6 (Loneliness  $\rightarrow$  Active Coping Strategies  $\rightarrow$  Materialism as Sharing  $\rightarrow$  Fewer Unethical



**Fig. 2** Proposed sequential mediation model. Bolded paths and coefficients are significant at  $p < .05$

**Table 3** Sequential mediation effects

	Path	<i>p</i>	Bootstrapped confidence interval	Mediation
<b>Hypothesis H6</b>				
Direct effect: loneliness → unethical behaviors	.00	.94	[− .09; .09]	Full mediation
Indirect effect: loneliness → passive coping strategies → materialism as product acquisition → unethical behaviors	.08	<.05	[.01; .02]	
<b>Hypothesis H7</b>				
Direct effect: loneliness → unethical behaviors	.09	=.07	[− .02; .02]	Full mediation
Indirect effect: loneliness → active coping strategies → materialism as sharing of possessions → unethical behaviors	−.04	<.05	[− .01; −.001]	
<b>Hypothesis H8</b>				
Adolescents from middle school				
Direct effect: active coping strategies → unethical behaviors	−.01	=.43	[− .15; .13]	Full mediation
Indirect effect: active coping strategies → materialism as sharing of possessions → unethical behaviors	−.09	<.05	[− .10; −.04]	
Adolescents from high school				
Direct effect: active coping strategies → unethical behaviors	−.02	=.40	[− .25; .10]	No mediation
Indirect effect: active coping strategies → materialism as sharing of possessions → unethical behaviors	−.04	=.13	[− .15; .13]	
<b>Hypothesis H9</b>				
Adolescents from middle school				
Direct effect: passive coping strategies → unethical behaviors	.02	=.35	[− .05; .09]	No mediation
Indirect effect: passive coping strategies → materialism as product acquisition → unethical behaviors	.04	=.22	[− .06; .13]	
Adolescents from high school				
Direct effect: passive coping strategies → unethical behaviors	.04	=.20	[− .59; .80]	Full mediation
Indirect effect: passive coping strategies → materialism as product acquisition → unethical behaviors	.12	<.05	[.03; .09]	

Behaviors) were supported. In both cases, the direct effect of loneliness on the adoption of unethical behaviors was not significant.

Finally, we tested the possibility that the sequential mediations would differ as a function of age cohort. Using Preacher et al.'s (2007) macro procedure, we simultaneously examined both the direct and indirect effects separately for the two age cohorts (middle school and high school). The results of this analysis can be seen in the middle and bottom portions of Table 3. Only the indirect effects were significant for both groups, indicating full mediation. As Table 3 indicates, for middle school adolescents, the indirect effect of active coping on unethical behavior, through sharing of possessions, was significant (Active Coping Strategies → Materialism as Sharing → Fewer Unethical Behaviors), but this indirect effect for high school adolescents was not significant. These results support the hypothesis (H8) that the effects of active coping through sharing would be stronger for middle school than for high school adolescents.

In contrast, for high school adolescents, the indirect effect of passive coping on unethical behavior, through acquisition of products (Passive Coping Strategies → Materialism as Product Acquisition → More Unethical Behaviors) was significant, but this effect was not significant for middle school adolescents. These results support the hypothesis (H9) that the effects of passive coping through product acquisition materialism would be stronger for high school than for middle school adolescents.

## General Discussion

In this study, we provided evidence that loneliness impacts adolescents' adoption of unethical behaviors, but that this relation depends on how adolescents cope with loneliness. The adoption of active coping strategies, which directly addresses the problem of loneliness, and thus are aimed at "fixing the problem" of loneliness, results in the adoption of fewer unethical behaviors for adolescents. However, the



adoption of passive coping strategies, which avoids the problem of loneliness, results in an increase in adolescent unethical behaviors. Our results also show that coping strategies can be implemented through consumption-related behaviors. Specifically, active coping strategies are associated with increased sharing of possessions, whereas passive coping strategies are associated with increased product acquisition. The former is associated with less unethical behavior, and the latter is associated with more unethical behavior. Finally, we also showed that the mediational relations as a function of active and passive coping strategies differ as a function of age cohort. Specifically, the mediated effect of active coping strategies through sharing of possessions is stronger for younger (middle school) adolescents, whereas the mediated effect of passive coping strategies through product acquisition is stronger for older (high school) adolescents.

### Theoretical Contributions

We believe that the present work offers a number of theoretical contributions. First, the results of this study show that loneliness can influence the adoption of unethical behaviors in two very different ways, depending on the coping strategies lonely people adopt. These findings provide a potential explanation for conflicting findings in previous research. As noted earlier, some research shows a positive relation between loneliness and unethical behaviors, whereas other research shows the opposite. Our findings show that both may be correct, depending on which coping strategies are adopted. Passive strategies effectively avoid the problem of loneliness. One passive strategy is to focus on non-social things such as possessions. Although the strategy may be effective in distracting lonely adolescents from their current problem, it may ultimately have detrimental effects. Our findings support this proposition, as the adoption of passive strategies through product acquisition materialism is associated with increased unethical behavior. These findings are consistent with research suggesting that materialistic orientations can crowd out social interactions and thus diminish well-being (Kasser 2002; Lane 2000; Pieters 2013).

However, loneliness does not have to inevitably lead to diminished well-being. Our results show that adoption of active coping strategies actually leads to greater well-being, at least in the form of engaging in fewer unethical behaviors. Our findings further show that possessions can also be used in active coping strategies. One active coping strategy that directly addresses a perceived lack of social connectedness is through sharing of possessions (Belk 2010, 2014), and such sharing is related to a decrease in adolescents' adoption of unethical behaviors. These

findings are consistent with the view that loneliness can be adaptive by signaling deficiencies in social connections, spurring actions that are designed to improve inclusive fitness (Cacioppo and Hawkey 2009). Thus, our research contributes to the literature on the effects of loneliness on unethical behavior by providing a theoretical model that can account for previous discrepant findings.

Second, our research also contributes to the literature on materialism, both generally and specifically in the field of business ethics. Research on the effects of materialism skews heavily toward results demonstrating its detrimental effects (cf. Lemrová et al. 2014; Lu and Lu 2010; Muncy and Eastman 1998; Rafi et al. 2013; Shrum et al. 2013), which Tang et al. (2014, p. 481) refer to as the "dark side" of materialism in business ethics. Our findings provide some support for this view, showing that loneliness is associated with an increase in materialism as product acquisition, which results in increased adoption of unethical behaviors in adolescents. However, our research also shows that certain types of materialism can also have a bright side. Materialism through the sharing of possessions is one way for adolescents to cope with loneliness, and this coping strategy is associated with the adoption of fewer unethical behaviors. Thus, we offer an expanded view of adolescent materialism that specifically refers not only to the acquisition of objects, but also to the sharing of possessions, the latter of which can increase well-being.

Third, our research also contributes to the literature on the antecedents of adolescent behavior in general, and unethical behavior in particular. We show that materialism as sharing of possessions mediates the relationship between active coping strategies and unethical behaviors among middle school adolescents, whereas materialism as product acquisition mediates the relationship between passive coping strategies and unethical behaviors among high school adolescents. These findings are consistent with research in social psychology (Berndt 1979) and consumer behavior (Gentina 2014) that shows that when early adolescents enter middle adolescence, they start to establish their social identity by moving toward autonomy from their mothers while forming new social relationships outside the family and being connected to significant others such as their friends. Younger adolescents engage in sharing practices with their friends as an active way to cope with feelings of loneliness (Gentina 2014), which in turn decreases unethical behaviors. In contrast, older adolescents increasingly recognize themselves as distinct entities within their personal identities. In doing so, late adolescents use more materialistic possessions to their self-identity (Chaplin and John 2005), as a passive way to cope with feelings of loneliness, which in turn increases unethical behaviors.

## Practical Contributions

Loneliness has been recognized as a significant social problem over the lifespan. Loneliness is particularly pronounced during adolescence (Steinberg 2007, 2008). Understanding how adolescents cope with loneliness and how this may lead to engaging in unethical behaviors, provides practical implications to a wide range of stakeholders, including consumers, educational institutions, marketing practitioners, and public policy makers (Gentina et al. 2015a, b, 2016a, b). Our results present evidence for both the vicious and virtuous sides of loneliness (Pieters 2013). First, for some teens, loneliness can increase the use of passive coping strategies, which in turn increases materialism as product acquisition, and which increases unethical behaviors. Given the importance to adolescents of the acquisition of branded products, parents, educators, and managers should conceive of strategies and tactics that discourage lonely adolescents from habitually using possessions to resolve their loneliness. Rather, adolescents who seek advice about how to cope with loneliness should be encouraged to confront their problems with active coping strategies.

Second, beyond the vicious side of loneliness, our results also show its virtuous side. Some adolescents adopt passive coping strategies in response to loneliness, which in turn promotes materialism as sharing of possessions and thus reduces unethical behaviors. Adolescents learn ethics from society and more specifically through their interactions and sharing practices with their peers at school. In individualistic cultures, such as Europe and the US, lessons about sharing are based on the presumption that adolescents own their personal objects and that such possessions are willing to be shared (Belk and Llamas 2011). Because the meaning of ethics implies sharing with others without prior calculation (ten Bos and Willmott 2001; Hancock 2008), educators should design programs that invite adolescents to get involved in meaningful activities and encourage them to develop active solutions to cope with their loneliness. Programs that facilitate positive and constructive interactions among peers, such as group-based activities (e.g., collective sports), and that provide support (e.g., an educational component, such as improving group conversational skills), can encourage social interaction and are a critical means of reducing loneliness.

Third, prior research on the sharing economy has focused on the negative influence of sharing (Dillahunt and Malone 2015) and shows that such sharing is often driven by self-interest (Bardhi and Eckhart 2012). Although sharing economy platforms promote sharing among strangers, negative reciprocity can also arise in such platforms (Bardhi and Eckhart 2012), and incidences of racial discrimination (e.g., among AirBnB users) have also been

noted (Edelman and Luca 2014). We take a different perspective by focusing on the positive impact of sharing and show that materialism, as sharing of possessions, leads to fewer unethical behaviors. We further show that the relation between active coping and fewer unethical behaviors is mediated by sharing of possessions.

Fourth, the differential effects of age on the effects of loneliness on unethical behavior add a refinement that merits managerial consideration. The mechanisms underlying consumer unethical behavior at school differ, depending on age. Thus, to target adolescents more effectively through communication messages, business educators and administrators should orient their communication messages on the individual versus the group, depending on the age of adolescents. More specifically, the mediated effect of active coping strategies reducing unethical behavior via sharing of possessions is significant for adolescents in middle school but not for adolescents in high school. Because adolescents in middle school value sharing practices as a way to cope with feelings of loneliness (Gentina 2014), researchers, educators, and business ethics practitioners may develop actions to encourage sharing and collaboration practices within the peer group, such as get-together lunches, sporting contests, classroom days, and classroom projects that facilitate exchange among adolescents, because school social network ties may be strengthened through proximity and shared experiences among adolescents.

In contrast, the mediated effect of passive coping strategies increasing unethical behavior via product acquisition is significant for high school adolescents but not for middle school adolescents. Thus, the motivation to engage in unethical behaviors is more self-oriented and centered on materialism as acquisition of objects. Consequently, business educators should orient their communication messages on the individual (rather than the group and sharing practices) and their need to possess material good in order to affirm their self-identity.

## Limitations and Future Research

There are limitations of our research that bear noting, some of which may present opportunities for further investigation. For example, at first glance, our findings may seem to provide some support for a positive relation between loneliness and unethical behaviors, given that the zero-order correlation between loneliness and unethical behaviors is positive. However, this conclusion may be misleading. First, it is worth noting that the zero-order relation is small, explaining only one percent of the variance ( $R^2 = .01$ ). But such a small overall relation is expected given that we proposed what Zhao et al. (2010) refer to as “competitive mediation” (p. 199). Competitive mediation

means that a predictor variable can have opposite effects on a criterion variable through different mediational paths, which is what our findings show. If the different mediational paths produce effects of the same magnitude, they will effectively cancel each other out, resulting in a non-significant zero-order correlation; if one path produces stronger effects than the other, a significant zero-order relation may be observed, with the sign consistent with the product of the mediating path coefficients.

Our results are consistent with the latter case, given the positive zero-order correlation between loneliness and unethical behaviors. Thus, it may be tempting to conclude that the effect through passive coping is stronger than the effect through active coping. However, this conclusion may also be misleading. First, it is difficult to discern why the effects of the different paths might differ. For example, the magnitude of the relations between loneliness and the different coping strategies may differ, and the magnitude of the relations between the mediators and unethical behaviors may differ. As Fig. 2 shows, both possibilities are shown in our results. Second, the relative strengths of the specific relations may be sample-specific. The extent to which any one person, or group of people, adopt particular coping strategies may vary with many factors (e.g., age, cultural orientation, traits). Thus, the important conclusions from our results pertain to the finding of different ways (mediational paths) in which loneliness may influence unethical behaviors, but not necessarily to the relative strength of the different paths.

A second limitation pertains to our measures. Although the measures of sharing we used are well established, they may not fully capture the universe of key sharing motivations. Sharing can also be important stores of social memories (e.g., souvenirs) and connections (e.g., smartphones), and may also involve intangible goods (e.g., personal experiences and intimate feelings; Belk 2014; Gentina 2014).

Third, future research could also incorporate additional explanatory variables related to loneliness in studying unethical behaviors during adolescence. For example, self-esteem (Tang and Zuo 1997), need for autonomy (Rallapalli et al. 1994), and social position within the peer group (Gentina et al. 2015a) have been shown to explain unethical behaviors. Future research could examine these variables as interactive predictors of unethical behaviors during adolescence.

Fourth, this research was conducted in France, and thus aspects of the findings may be culture-specific. However, on the positive side, the general theoretical model, which is derived primarily from research with US participants, was supported, indicating a measure of external validity. Moreover, the use of French adolescent participants may result in an underestimation of the magnitude of the effects. For example, scrutiny of the results shows that some

relations within the structural model are relatively small. However, many of the scales used to measure key constructs were developed with adult participants in the US (e.g., loneliness, coping strategies). Although all such measures were rigorously translated and adapted for French adolescents, some measurement error may result, which can reduce the correlations between key variables. Despite this limitation, the model was supported and is consistent with previous research.

France is also an independent-oriented culture. More interdependent cultures might provide new insights. For example, in collectivistic Asian cultures, adolescents prioritize collective goals, emphasize connectedness, and are more sensitive to the influence of their friends and adopt others' opinions and actions (Lee and Kacen 2008; Triandis 1995). Researchers might investigate how loneliness and coping strategies for loneliness explain the adoption of unethical behaviors in collectivistic cultures. Moreover, because sharing is part of culture, sharing may differ across cultures according to the degree of individualism (Belk 2010). Prior research suggests that sharing is more pronounced in collectivistic cultures, which value social links and consideration of others, than in individualistic countries, which value individual assertiveness (Gentina et al. 2015a, b). Therefore, more research should explore how sharing mediates the relationship between coping strategies for loneliness and unethical behaviors in collectivistic cultures.

Finally, future research should investigate the different routes between buying online versus going to brick and mortar stores, through the two different forms of coping strategies—passive and active. It would be fruitful to determine whether active coping strategies promote offline buying, but passive coping strategies promote online buying.

These and other avenues for future research should enhance our understanding of the complicated relations between antecedents and consequences of loneliness. We hope that the results reported here will encourage additional research in this important area.

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#### Compliance with Ethical Standards

**Conflict of interest** Elodie Gentina declares that she has no conflict of interest. L. J. Shrum declares that he has no conflict of interest. Tina Lowrey declares that she has no conflict of interest.

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