Linking Adolescents' Exposure to and Identification With Reality TV to Materialism, Narcissism, and Entitlement

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According to previous research, there is a cross-sectional link between adolescents' reality TV viewing on the one hand, and their level of materialism, narcissism, and entitlement on the other hand. The current study was set out to determine whether there is a longitudinal link, and whether the effect of reality TV viewing could potentially be attributed to adolescents' identification with reality TV cast members. A two-wave panel study was conducted among 392 adolescents. Importantly, the cross-sectional patterns from previous research could be replicated, but they did not stand the test of time: Reality TV viewing in Wave 1 was longitudinally related with materialism and identification, but not with narcissism and entitlement in Wave 2. Notably, the longitudinal relation between reality TV viewing on adolescents' materialism disappeared once adolescents' identification was controlled for. This demonstrates the importance of viewer experiences in assessing media effects. The difference in findings between materialism and entitlement and narcissism were explained by theorizing that reality TV mainly portrays negative consequences of entitled and narcissistic behavior, causing viewers to refrain from copying this behavior. Future research could test this hypothesis and investigate how consequences of certain behaviors are portrayed in reality TV and how these consequences are perceived by reality TV viewers.

Public Policy Relevance Statement
Our study demonstrated that caution is needed when interpreting cross-sectional relations because not all cross-sectional relations can be replicated in longitudinal research. Furthermore, the effects of reality TV viewing/media use should not be studied in isolation, as they are dependent on viewer experiences.

Keywords: reality TV, (wishful) identification, materialism, entitlement, narcissism

Watching scripted reality TV series remains a popular pastime among adolescents (Record, 2018). Longitudinal research has revealed a direct relationship between the amount of reality TV adolescents watch and their involvement with the genre (Kühne & Opree, 2020). Likely, viewers need to grow familiar with the reality TV genre and show-specific content to appreciate the story lines and identify with the characters. Such an emotional media response

state may, in turn, make adolescents more susceptible to effects of the genre—or at least that is what the differential susceptibility to media effects model postulates (Valkenburg & Peter, 2013).

The reality TV genre has a questionable reputation and has been labeled a *super spreader* of materialism, narcissism, and entitlement (Twenge, 2006). Though cross-sectional research confirmed that reality TV viewing on the one hand, and materialism, entitlement, and narcissism on the other hand are positively related (Opree & Kühne, 2016), it also raised two additional questions. The first question pertains to *direct causality*: Does reality TV viewing lead to heightened materialism, narcissism, and entitlement among adolescents? The second question relates to *indirect causality*: Assuming reality TV viewing leads to heightened adolescents' materialism, entitlement, and narcissism, is this relation mediated by adolescents' identification with the reality TV genre?

Opree and Kühne (2016) reported significant relationships between reality TV viewing, materialism, entitlement, and narcissism for adolescents (i.e., 264 respondents between the ages of 15 to 17), but not emerging adults (i.e., 263 respondents between the ages of 18 to 21). The authors explained their findings with social comparison theory (Gerber et al., 2018) arguing that, compared with emerging adults, adolescents were perhaps more likely to engage in upward comparison when watching reality TV and follow the example of

their favorite reality TV cast members. Still, as Opree and Kühne (2016) failed to measure identification with reality TV cast members, this assumption remains merely an educated guess.

Research Aims and Relevance

The current study uses a longitudinal design to gauge a deeper understanding regarding the aforementioned questions on direct and indirect causality. It aims to (a) determine whether there is a positive longitudinal relation between reality TV viewing and materialism, narcissism, and entitlement among adolescents, and (b) determine whether this relation is mediated by adolescents' identification with the reality TV stars. More particularly, it aims to (c) determine the mediating role of different measures for adolescents' identification with reality TV stars while watching reality TV, being wishful identification (i.e., wanting to be like the character), emotional empathy (i.e., experiencing similar emotions to the character), cognitive empathy (i.e., being concerned about the character), and character merging (i.e., feeling similar to the character). These four involvement measures are not only predominant in the literature on media identification (Hoffner & Buchanan, 2005; Igartua & Barrios, 2012), but they also map closely onto dimensions of the emotional media response state identified by Valkenburg and Peter (2013).

The different dimensions of the emotional media response state include "an affective valanced reaction to the media content," "state empathy," and "sympathy" (Valkenburg & Peter, 2013). When applied to the reality TV genre, these dimensions pertain to adolescents showing affective reactions to the reality TV stars, feeling emotions like those experienced by the reality TV stars, and/or showing concern for the reality TV stars. Knowing whether and how these dimensions of the emotional media response state mediate the effect of reality TV viewing on adolescents is of both theoretical and practical importance.

From a theoretical perspective, the findings of this study may add empirical evidence for the social comparison claims made by Opree and Kühne (2016) and the differential susceptibility to media effects model of Valkenburg and Peter (2013). From a practical perspective, these findings may provide a concrete starting ground for designing media literacy interventions aiming at reducing reality TV's effects. If adolescents' reality TV viewing is indeed positively associated with wishful identification, emotional empathy, cognitive empathy, and character merging *and* these enhance susceptibility, one might consider it important to teach adolescents to reflect on their favorite characters' actions and beliefs, and to consider which of these are worth emulating.

Theoretical Framework

The following sections subsequently discuss the potential direct and indirect relations between reality TV viewing and materialism, narcissism, and entitlement with the goal of deriving relevant research hypotheses.

Direct Relation Between Reality TV Viewing and Materialism, Narcissism, and Entitlement

Harmon (2001) was among the first to examine the link between general TV viewing and materialism, and he did so on the basis of cultivation theory. Originally, cultivation was a macrolevel theory, developed by Gerbner in the late 1960s and early 1970s to explain the influence that widespread media messages "gradually exerted on the public" (Potter, 2014, p. 1016). Harmon (2001) linked cultivation to "affluenza," a contraction of the words "affluence" and "influenza": Through displays of affluence, commercial TV and advertising spread the contagious message that possessions are important and that they bring happiness and success—making audiences more materialistic. Furthermore, when describing Jhally's (2000) critical analysis of media commercialism, Harmon (2001, pp. 406–407) claims that displays of affluence appeal to us "as individuals motivated by selfish greed, rather than as compassionate, generous members of a society caring about collective issues"—linking commercial TV and advertising to narcissism and entitlement too.

Several colleagues have built on Harmon's work and showed that TV use—and reality TV in particular—is linked to materialism (Moschis et al., 2011; Shrum et al., 2011; Yang & Oliver, 2010), narcissism (Gibson et al., 2018; Lull & Dickinson, 2018), and entitlement (i.e., more particularly emotions of envy and jealousy, see Lewis, 2021; Lewis & Weaver, 2016; Nabi & Keblusek, 2014). Though all previous work is cross-sectional and/or experimental (focusing on short-term effects) in nature and was conducted among college or adult samples, our first hypothesis is,

> *Hypothesis 1:* There is a positive longitudinal relation between adolescents' reality TV viewing and *materialism* (Hypothesis 1a), *narcissism* (Hypothesis 1b), and *entitlement* (Hypothesis 1c).

Harmon and his team also investigated the relation between reality TV viewing and materialism specifically and did so using a cross-sectional survey conducted among a college sample (Lee et al., 2016). Importantly, they found that the direct relation between reality TV viewing and materialism was fully mediated by the students' viewing experiences (i.e., enjoyment and social comparison). These findings add credibility to Opree and Kühne's (2016) concurrent claim that adolescents' susceptibility to the effects of reality TV viewing on materialism, narcissism, and entitlement could be attributed to upward social comparison.

A longitudinal study revealed that reality TV viewing was indeed a causal predictor of adolescents' identification with reality TV cast members, but that identification did not predict reality TV viewing (Kühne & Opree, 2020). If this increased identification is in turn a causal predictor of adolescents' materialism, narcissism, and entitlement this bears important implications for the findings by Lee et al. (2016), as it means they can be extended to new contexts (i.e., longitudinal vs. cross-sectional), new audiences (i.e., adolescents vs. students), and outcome variables (i.e., narcissism and entitlement in addition to materialism). Such findings would also give additional merit to the differential susceptibility to media effects model of Valkenburg and Peter (2013).

Indirect Relation Between Reality TV Viewing and Materialism, Narcissism, and Entitlement

Despite being introduced in the 1950s, Festinger's social comparison theory is still omnipresent within the field of psychology. It is human nature to compare oneself with others and—based on the person and/or the attribute being compared—this comparison

can either be downward, upward, or neutral. Downward comparison can result in feelings of superiority, whereas upward comparison can result in feelings of inferiority or even inadequacy (Gerber et al., 2018). Upward social comparison has been linked to wishful identification (Hoffner & Buchanan, 2005). This means that adolescents who look up to reality TV cast members may aspire to *be* or *act* like these cast members. Reality TV cast members typically display materialism (e.g., by pursuing a lavish lifestyle), narcissism (e.g., by placing their own needs prior to those of others), and entitlement (e.g., by believing they deserve special treatment and success; see the discussion by Opree & Kühne, 2016; based on Hill, 2005; Twenge, 2006; Young & Pinsky, 2006). Wishful identification with—and, hence, wanting to be or act like—reality TV cast members can lead adolescents to copy the materialistic, narcissistic, and entitled behaviors they see on screen.

According to Hoffner and Buchanan (2005), wishful identification is experienced after viewing, while identification during viewing allows viewers to get "drawn into" the storyline. Viewers can become emotionally involved with the character (i.e., referred to as emotional empathy), have the tendency to adopt the character's point of view (i.e., cognitive empathy), and/or imagine being one of the characters (i.e., character merging; similar to the concept of *experience taking* used by Gibson et al., 2018; Kaufman & Libby, 2012). Longitudinal research has revealed that adolescents' TV viewing predicts wishful identification as well as all the aforementioned forms of identification (Kühne & Opree, 2020). Reality TV is an emotive genre *pur sang* and its diverse casts and the way episodes are typically cut provide ample room for identification (Pozner, 2010). Based on the differential susceptibility to media effects model (Valkenburg & Peter, 2013), we expect that wishful identification and identification with reality TV cast characters mediates the effect of reality TV viewing on materialism, narcissism, and entitlement:

Hypothesis 2: There is a positive longitudinal relation between adolescents' reality TV viewing and *wishful identification* (Hypothesis 2a), and between wishful identification and *materialism* (Hypothesis 2b), *narcissism* (Hypothesis 2c), and *entitlement* (Hypothesis 2d).

Hypothesis 3: There is a positive longitudinal relation between adolescents' reality TV viewing and *identification* (Hypothesis 3a), and between identification and *materialism* (Hypothesis 3b), *narcissism* (Hypothesis 3c), and *entitlement* (Hypothesis 3d).

Hypothesis 4: There is a positive longitudinal relation between adolescents' reality TV viewing and *emotional empathy* (Hypothesis 4a), and between emotional empathy and *materialism* (Hypothesis 4b), *narcissism* (Hypothesis 4c), and *entitlement* (Hypothesis 4d).

Hypothesis 5: There is a positive longitudinal relation between adolescents' reality TV viewing and *cognitive empathy* (Hypothesis 5a), and between cognitive empathy and *materialism* (Hypothesis 5b), *narcissism* (Hypothesis 5c), and *entitlement* (Hypothesis 5d).

Hypothesis 6: There is a positive longitudinal relation between adolescents' reality TV viewing and *character merging*

(Hypothesis 6a), and between character merging and *materialism* (Hypothesis 6b), *narcissism* (Hypothesis 6c), and *entitlement* (Hypothesis 6d).

Method

Participants

A two-wave panel survey among adolescents (ages 15 to 17) was conducted to test the hypotheses. The time interval between the two waves was 6 months. To achieve a sample size of approximately 400 participants in the second wave and to account for panel attrition, the number of respondents in the first wave was deliberately oversampled ($N_{wave1} = 657$; $N_{wave2} = 392$; retention rate = 60%). A research agency experienced with research on adolescents was authorized to collect the data. The agency recruited participants through their online panel which is representative of the Netherlands with regard to age, sex, and geographical distribution. Participants were informed that the study was about TV viewing, possessions, and happiness, and that they could stop their participation at any point in time or request their data to be removed after participation. Informed consent was obtained from the participating adolescents as well as from their parents. The study received institutional review board approval by the university's ethical committee. The data set was previously used by Kühne and Opree (2020).

Measures

Reality TV viewing, materialism, narcissism, entitlement, and the response states were measured in both waves. The questions on materialism, materialism, narcissism, entitlement were presented first, the questions on reality TV viewing second, and the questions on the response states third. In addition, a series of covariates were measured in Wave 1, at the start of the questionnaire.

Reality TV Viewing

Participants were asked to indicate how frequently they watched a series of MTV reality TV shows that were specifically developed for their age group and that were aired on TV at the time the study was conducted (for a similar practice, see Nabi, 2009). An inspection of the program guide revealed that nine shows were aired that fit our definition of reality TV: *16 and Pregnant*, *Are You the One?*, *Catfish: The TV Show*, *Geordie Shore*, *Jersey Shore*, *Made*, *Teen Mom 2*, *The Hills*, and *Snooki & JWOWW*. Participants could indicate their frequency of viewing on a 5-point scale ranging from 1 (*never*) to 5 (*very often*). An overall score of reality TV viewing was created by averaging the nine items ($M_{w1} = 1.52$, $SD_{w1} = .77$; $M_{w2} = 1.56$, $SD_{w2} = .78$; $r_{w1w2} = .57$).

Wishful Identification and Identification

Wishful identification was measured with a scale developed by Hoffner and Buchanan (2005). The scale includes five items which ask participants to indicate how much they desire to be like their favorite reality TV character (e.g., "My favorite character is the sort of person I want to be like myself"). Participants could give their response on a 5-point scale, with response categories ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The items formed a reliable

measure of wishful identification in Wave 1 (α = .76) and in Wave 2 (α = .76) and an average score was formed for each wave (M_{w1} = 2.66, SD_{w1} = .76; M_{w2} = 2.66, SD_{w2} = .77; r_{w1w2} = .61).

We used the instrument by Igartua and Barrios (2012) which assesses three dimensions of identification with characters: cognitive empathy, emotional empathy, and the sensation of becoming the character or merging. The original items were slightly adapted to measure participants' identification with their *favorite* reality TV character. Emotional empathy was measured with three items (e.g., "When watching reality TV shows, I understand my favorite character's feelings or emotions") that formed a reliable scale in both waves (α_{w1} = .93; α_{w2} = .94). Four items measured cognitive empathy (e.g., "When watching reality TV shows, I am concerned about what is happening to my favorite character"). These items formed a reliable measure too (α_{w1} = .92; α_{w2} = .93). Finally, merging with the favorite reality TV character is reliably measured in each wave (α_{w1} = .96; α_{w2} = .97) with four items (e.g., "When watching reality TV shows, I feel as if I were my favorite character").

Separate mean scores were calculated for emotional empathy (M_{w1} = 2.70, SD_{w1} = .97; M_{w2} = 2.68, SD_{w2} = .99; r_{w1w2} = .57), cognitive empathy (M_{w1} = 2.62, SD_{w1} = .94; M_{w2} = 2.63, SD_{w2} = .95; r_{w1w2} = .57), and merging (M_{w1} = 2.34, SD_{w1} = .93; M_{w2} = 2.36, SD_{w2} = .94; r_{w1w2} = .63). In addition, one overall score for identification was created by averaging the respondents' scores across all eleven indicators (M_{w1} = 2.54, SD_{w1} = .89; M_{w2} = 2.54, SD_{w2} = .90; r_{w1w2} = .63). The scale was reliable in both waves (α_{w1} = .97; α_{w2} = .97).

Materialism, Narcissism, and Entitlement

To measure materialism, we used the short version of the Material Values Scale for Children (Opree et al., 2011) which includes six indicators (e.g., "Do you think it's important to own expensive things?"). The response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The items formed a reliable measure both in Wave 1 (α = .94) and in Wave 2 (α = .93). A mean score of materialism was formed for both waves (M_{w1} = 2.30, SD_{w1} = .99; M_{w2} = 2.26, SD_{w2} = .93; r_{w1w2} = .74).

Narcissism was measured with the 16-item Narcissistic Personality Inventory (NPI-16; Ames et al., 2006). The NPI-16 includes 16 pairs of items that include a response option indicating high narcissism and a response option indicating low narcissism (e.g., "Everybody likes to hear my stories" and "Sometimes I tell good stories"). A total score of narcissism was created by counting how many times participants picked the high narcissism option (M_{w1} = 3.67, SD_{w1} = 2.94; M_{w2} = 3.49, SD_{w2} = 2.88; r_{w1w2} = .57). The measure was reliable in both waves (α_{w1} = .74; α_{w2} = .74).

Entitlement was measured with the Money Attitudes Scale (Beutler & Gudmunson, 2012). The scale includes six items that ask adolescents to indicate to what extent they deserve to be provided with things they need or want (e.g., "I feel it is my parents' job to pay for my everyday needs"). Again, the response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The items formed a reliable measure in both waves (α_{w1} = .81; α_{w2} = .82). The items were averaged to form a measure of materialism in Wave 1 (M = 3.18, SD = .72) and Wave 2 (M = 3.14, SD = .69; r_{w1w2} = .60).

In both waves, the three dependent variables were positively correlated. That is, materialism was positively correlated with narcissism (r_{w1} = .29, p < .001; r_{w2} = .32, p < .001) and entitlement (r_{w1} = .47, p < .001; r_{w2} = .43, p < .001), and narcissism was positively correlated with entitlement (r_{w1} = .23, p < .001; r_{w2} = .25, p < .001).

Covariates

We measured a series of covariates because they may act as confounders in the hypothesized relationships. Single item measures were used to measure age (M = 15.94, SD = .80), sex (56% male), and household socioeconomic status (SES). Household SES was assessed by asking participants to indicate whether the household they grew up in had more or less money to spend than the average household. The response scale ranged from 1 (*much less*) to 10 (*much more; M* = 5.93, SD = 1.83). Moreover, overall TV viewing was measured with an instrument adopted from Lee et al. (2008). Participants had to indicate on how many days during the week they watch TV (response categories ranging from *0 days* to *5 days*), and how much time they spend watching TV on an average weekday (in hours and minutes). The two scores were multiplied to estimate the viewing time during the week. Similarly, the number of days of TV viewing during the weekend (response categories ranging from 0 days to 2 days) and the respective average daily viewing time were measured and multiplied with each other to estimate the viewing time during the weekend. By adding both scores, a total score of weekly TV viewing in hours was created (M = 17.50, SD = 13.79).

Results

The relationships between the key variables were explored with correlation analyses and panel models. Below, the results of the cross-sectional and longitudinal correlation analyses are presented first, followed by the results of the panel models. Before conducting these analyses, we inspected whether the variables were approximately normally distributed (Byrne, 2010; Field, 2009). The inspection of the univariate distributions of the variables showed that the overall score of TV viewing was not normally distributed. In Wave 1, the skewness and the kurtosis were high (skewness = 4.26; kurtosis = 30.11). Inspecting the boxplot of overall TV viewing showed that there were six outliers which had very high scores (i.e., scores more than three times the interquartile range from the third quartile). In fact, these outliers had indicated to watch TV for 68 or more hours per week. Removing these outliers substantially reduced the skewness and kurtosis of overall TV viewing so that all variables were approximately normally distributed (skewness ≤ |1.68|, kurtosis ≤ |2.40|). Thus, in all further analyses the six outliers were excluded. To account for the remaining deviations from normality, we report bias-corrected bootstrap confidence intervals (Byrne, 2010) for each test estimate in Table 1. The confidence intervals corroborated the results of the significance tests.

Bivariate Cross-Sectional and Longitudinal Correlation Analyses

The Hypotheses 1a to 1c predicted that reality TV viewing is positively associated with materialism, narcissism, and entitlement. The cross-sectional correlation coefficients in Wave 1 are summarized in Table 1 (Column 4). Reality TV viewing was

Table 1
Summary of Results

Hypotheses	Independent variable	Dependent variable	Cross-sectional correlation in Wave 1		Longitudinal correlation from Wave 1 to Wave 2		Path coefficient from Wave 1 to Wave 2 in SEM	
			Estimate	CI[a]	Estimate	CI[a]	Estimate	CI[a]
H1a	Reality TV viewing	Materialism	.23***	[.12, .35]	.20***	[.09, .31]	.02–.03[b]	—
H1b	Reality TV viewing	Narcissism	.14**	[.05, .24]	.05	[−.05, .15]	−.01–.00[b]	—
H1c	Reality TV viewing	Entitlement	.11*	[−.01, .23]	.09#	[−.03, .21]	.00–.01[b]	—
H2a	Reality TV viewing	Wishful identification	.25***	[.14, .35]	.25***	[.17, .34]	.11*	[.04, .19]
H2b	Wishful identification	Materialism	.36***	[.27, .45]	.35***	[.26, .44]	.12**	[.06, .20]
H2c	Wishful identification	Narcissism	.07	[−.04, .17]	.07	[−.04, .19]	.05	[−.05, .13]
H2d	Wishful identification	Entitlement	.27***	[.17, .36]	.24***	[.13, .34]	.08#	[−.01, .17]
H3a	Reality TV viewing	Identification	.36***	[.29, .44]	.33***	[.25, .40]	.11**	[.04, .20]
H3b	Identification	Materialism	.24***	[.14, .33]	.26***	[.16, .36]	.10*	[.03, .19]
H3c	Identification	Narcissism	.02	[−.08, .13]	.01	[−.09, .12]	.01	[−.07, .10]
H3d	Identification	Entitlement	.21***	[.11, .31]	.17***	[.06, .27]	.04	[−.08, .14]
H4a	Reality TV viewing	Emotional empathy	.37***	[.30, .44]	.32***	[.25, .39]	.11*	[.02, .18]
H4b	Emotional empathy	Materialism	.22***	[.12, .32]	.22***	[.13, .31]	.06	[−.01, .16]
H4c	Emotional empathy	Narcissism	.03	[−.08, .14]	.03	[−.07, .14]	.03	[−.06, .12]
H4d	Emotional empathy	Entitlement	.23***	[.12, .32]	.19***	[.07, .29]	.05	[−.05, .14]
H5a	Reality TV viewing	Cognitive empathy	.36***	[.29, .44]	.29***	[.22, .37]	.09*	[.01, .18]
H5b	Cognitive empathy	Materialism	.21***	[.11, .30]	.23***	[.13, .33]	.09*	[.02, .17]
H5c	Cognitive empathy	Narcissism	.01	[−.10, .11]	−.02	[−.11, .08]	−.02	[−.10, .07]
H5d	Cognitive empathy	Entitlement	.17***	[.07, .27]	.14**	[.02, .25]	.03	[−.08, .13]
H6a	Reality TV viewing	Character merging	.30***	[.21, .39]	.31***	[.23, .39]	.15***	[.07, .25]
H6b	Character merging	Materialism	.24***	[.15, .34]	.28***	[.18, .37]	.12**	[.04, .20]
H6c	Character merging	Narcissism	.03	[−.08, .14]	.02	[−.08, .13]	.02	[−.06, .11]
H6d	Character merging	Entitlement	.20***	[.10, .29]	.17**	[.06, .26]	.05	[−.07, .13]

Note. SEM = structural equation modeling.
[a] Bias-corrected bootstrap confidence intervals (95%, 5,000 samples for correlations, 200 samples for SEM). [b] Range of values observed in the estimated models for H2 to H6.
# $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

positively associated with materialism ($p < .001$), narcissism ($p < .01$), and entitlement ($p < .05$). Our expectation that reality TV viewing is positively associated with the different forms of identification was also confirmed. In Wave 1, Reality TV was positively correlated with wishful identification ($p < .001$), identification ($p < .001$), emotional empathy ($p < .001$), cognitive empathy ($p < .001$), and character merging ($p < .001$). There was also a consistent pattern regarding the cross-sectional correlations between the different forms of identification, on the one hand, and materialism, narcissism, and entitlement, on the other hand. Wishful identification, identification, emotional empathy, cognitive empathy, and character merging were each significantly related with materialism ($ps < .001$) and with entitlement ($ps < .001$). In contrast, however, the different forms of identification were not cross-sectionally related to narcissism (ns).

To arrive at a better understanding of the hypothesized relationships, we also inspected longitudinal correlations between the Wave 1 and Wave 2 variables (Table 1, Column 6). First, we found that reality TV viewing in Wave 1 was positively related to materialism ($p < .001$), but neither narcissism (ns) nor entitlement (ns) in Wave 2. Moreover, the longitudinal correlations showed the same pattern of results as the cross-sectional correlations with regard to the relationships between reality TV viewing and the different forms of involvement. That is, reality TV viewing in Wave 1 was correlated with wishful identification ($p < .001$), identification ($p < .001$), emotional empathy ($p < .001$), cognitive empathy ($p < .001$), and character merging ($p < .001$) in Wave 2. Finally, the longitudinal relationships between the different forms of involvement and the three outcome variables were consistent with the cross-sectional

relationships. Wishful identification, identification, emotional empathy, cognitive empathy, and character merging in Wave 1 were significantly related with materialism ($ps < .001$) and with entitlement ($ps < .01$) in Wave 2. In contrast, the different forms of identification were not longitudinally related to narcissism (ns).

Longitudinal Mediation Processes

The above bivariate analyses shed preliminary light on the proposed relationships between reality TV viewing, the different forms of identification, and materialism, narcissism, and entitlement. Importantly, differences were found between the cross-sectional and longitudinal bivariate relationships—highlighting the need to explore causality. To provide more evidence for the causal processes, we estimated a series of longitudinal path models (Finkel, 1995). More particularly, a series of panel models for the analysis of indirect effects with two waves (Cole & Maxwell, 2003; Little et al., 2007) were estimated with AMOS 25.

A separate model was estimated for each response state (Figure 1). In each model, the covariates sex, age, household SES, and overall TV viewing were included as exogenous variables for reality TV viewing, materialism, narcissism, entitlement, and the respective response state in Wave 1 and in Wave 2 (Little et al., 2007). To account for the temporal stability of variables, autoregressive paths from Wave 1 to Wave 2 were modeled for each variable. Directly relevant to the tests of the hypotheses are the additional lagged paths that were included in the models: Lagged paths from reality TV viewing in Wave 1 to the dependent variables in Wave 2 (i.e., materialism,

Figure 1
Visual Representation of the Relations Included in Each Panel Model, Using Wishful Identification as an Example
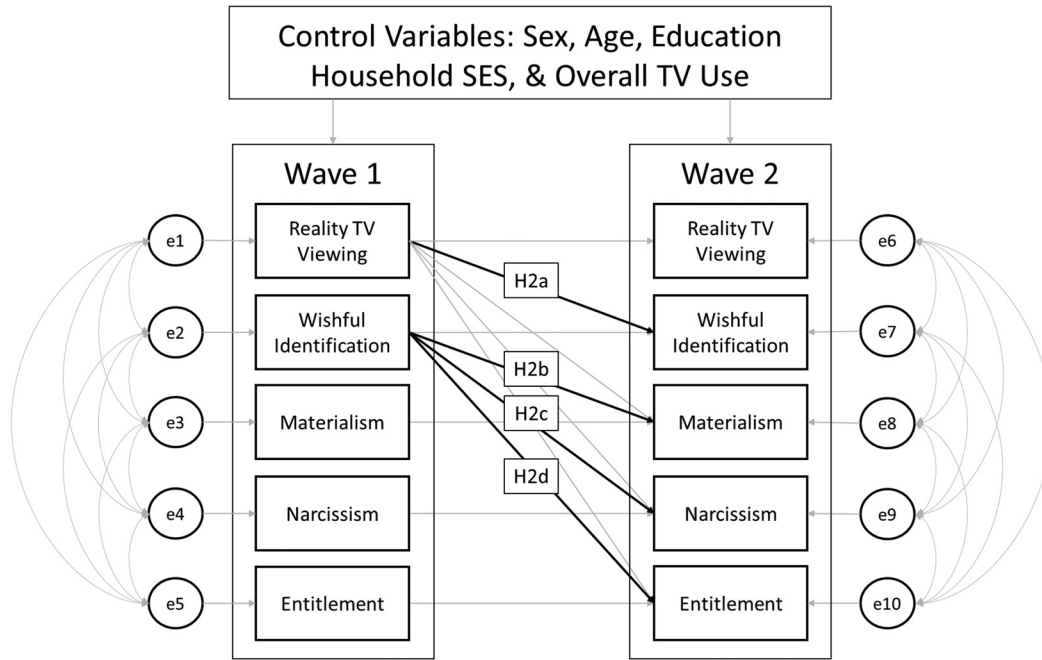
Note. Bold arrows refer to hypothesized paths and non-bold paths to additionally included paths. Adolescents' sex, age, education, household socioeconomic status, and overall TV use were included as control variables for all Wave 1 and Wave 2 variables.

narcissism, or entitlement) and the response state in Wave 2, and lagged paths from the response state in Wave 1 to materialism, narcissism, and entitlement in Wave 2 (Cole & Maxwell, 2003; Little et al., 2007). An indirect effect can be presumed when the independent variable in Wave 1 (i.e., reality TV viewing) has a significant effect on the mediator in Wave 2 (i.e., the response state) and when, at the same time, the mediator in Wave 1 has a significant effect on the dependent variable in Wave 2 (i.e., materialism, narcissism, or entitlement; Cole & Maxwell, 2003; Little et al., 2007). The error terms of the variables measured in Wave 1 were allowed to correlate and so were the error terms of the variables measured in Wave 2.

Tests of Hypotheses

Maximum likelihood estimation was used to estimate the models. The fit of the models to the data was evaluated by examining the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). An acceptable fit is indicated by a CFI larger than .90, a RMSEA smaller than .08, and a SRMR smaller than .10 (Byrne, 2010). The chi-square test was not considered in the evaluation of model fit because it is sensitive to sample size and tends to produce significant results in samples with over 200 cases (Schumacker & Lomax, 2010). The fit indices of each model are summarized in Table 2. All models had an acceptable fit to the data (CFI $\geq$ .99; RMSEA $\leq$ .07; SRMR $\leq$ .03) and, hence, could be interpreted. Column 8 in Table 1 provides a summary of the path estimates that were observed within each model. The lagged paths from reality TV to materialism (Hypothesis 1a), narcissism (Hypothesis 1b), and entitlement (Hypothesis 1c) were estimated in all five models. Importantly, once identification was controlled for, none of these effects were

Table 2
Fit Indices of Panel Models

Model	Model fit					
	χ^2	*df*	*p*	CFI	RMSEA	SRMR
Wishful identification	29.64	14	.009	.99	.05	.02
Identification (overall score)	32.54	14	.003	.99	.06	.03
Emotional empathy	28.82	14	.011	.99	.05	.02
Cognitive empathy	32.88	14	.003	.99	.06	.03
Merging with characters	36.84	14	.001	.99	.07	.03

Note. $n = 386$. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

significant—meaning that Hypothesis 1a, Hypothesis 1b, and Hypothesis 1c had to be rejected.

Hypothesis 2 stated that there is positive longitudinal relation between reality TV viewing and wishful identification (Hypothesis 2a), and between wishful identification and materialism (Hypothesis 2b), narcissism (Hypothesis 2c), and entitlement (Hypothesis 2d). We found that reality TV viewing in Wave 1 was associated with wishful identification in Wave 2 ($\beta = .11$, $p = .015$) and that wishful identification in Wave 1 was associated with materialism ($\beta = .12$, $p = .003$) and entitlement ($\beta = .08$, $p = .058$; marginally significant) in Wave 2. This provides support for the Hypotheses 2a, 2b, and 2d. In contrast, wishful identification in Wave 1 was not associated with narcissism in Wave 2 ($\beta = .05$, $p = .285$) and Hypothesis 2c was thus not confirmed. The findings suggest that the relation between reality TV viewing and materialism and entitlement is mediated by wishful identification.

Hypothesis 3 posited that there is positive longitudinal relation between reality TV viewing and identification (Hypothesis 3a), and between identification and materialism (Hypothesis 3b), narcissism (Hypothesis 3c), and entitlement (Hypothesis 3d). Hypothesis 3a was corroborated: Reality TV viewing in Wave 1 was associated with identification in Wave 2 ($\beta = .11$, $p = .009$). A significant relation between identification in Wave 1 and materialism in Wave 2 ($\beta = .10$, $p = .012$) corroborated Hypothesis 3b. However, the Hypotheses 3c and 3d were not confirmed. Identification in Wave 1 did neither influence narcissism ($\beta = .01$, $p = .853$) nor entitlement ($\beta = .04$, $p = .338$) in Wave 2. The results indicate that identification mediates the relation between reality TV viewing and materialism.

The Hypotheses 4 to 6 focus on the role of the specific dimensions of identification. The hypotheses predict that reality TV viewing promotes emotional empathy (Hypothesis 4a), cognitive empathy (Hypothesis 5a), and merging with characters (Hypothesis 6a). Furthermore, emotional empathy (Hypothesis 4b–d), cognitive empathy (Hypothesis 5b–d), and merging with characters (Hypothesis 6b–d) should be positively related to materialism, narcissism, and entitlement. Hypothesis 4a was corroborated: Reality TV viewing in Wave 1 was related to emotional empathy in Wave 2 ($\beta = .11$, $p = .015$). However, the Hypotheses 4b to 4d were not confirmed. Emotional empathy in Wave 1 was not related to materialism ($\beta = .06$, $p = .116$), narcissism ($\beta = .03$, $p = .529$), and entitlement ($\beta = .05$, $p = .283$) in Wave 2. Thus, emotional empathy did not function as a mediator. Hypothesis 5a was confirmed: Reality TV viewing in Wave 1 was related to cognitive identification in Wave 2 ($\beta = .09$, $p = .042$). In line with Hypothesis 5b, cognitive identification in Wave 1 was associated with increased materialism in Wave 2 ($\beta = .09$, $p = .024$). However, cognitive identification in Wave 1 was not related to narcissism ($\beta = -.02$, $p = .719$) and entitlement ($\beta = .03$, $p = .549$) in Wave 2. The Hypotheses 5c and 5d were rejected. Finally, cognitive mediation only seems to mediate the relation between reality TV viewing and materialism. We found support for the hypotheses 6a and 6b: Reality TV viewing in Wave 1 was related to merging with characters ($\beta = .15$, $p < .001$) in Wave 2, and merging with characters in Wave 1 was related was associated with increased materialism in Wave 2 ($\beta = .12$, $p = .002$). The Hypotheses 6c and 6d were not confirmed. Merging with characters in Wave 1 did not influence narcissism ($\beta = .02$, $p = .726$) and entitlement ($\beta = .05$, $p = .293$)

in Wave 2. Thus, merging with characters seemed to only mediate the effect of reality TV viewing on materialism.

Conclusion and Discussion

This study addressed two research questions: "Does reality TV viewing lead to heightened materialism, narcissism, and entitlement among adolescents?" (Research Question 1) and "Assuming reality TV viewing leads to heightened adolescents' materialism, entitlement, and narcissism, is this relation mediated by adolescents' identification with the reality TV genre?" (Research Question 2). Neither of these research questions were examined by means of longitudinal research before, and our results highlight the need to use longitudinal data and corresponding statistical models to explore relationships over time.

Main Conclusions and Theoretical Implications

First, the cross-sectional bivariate correlations showed that reality TV viewing was related to adolescents' materialism, narcissism, and entitlement, while the longitudinal bivariate correlations showed that only the relation between reality TV viewing and materialism remained significant over time. Furthermore, when using dedicated panel modeling to take the mediating role of adolescents' identification with reality TV into account, even this direct longitudinal relationship between reality viewing and materialism disappeared. The need for advanced modeling was also demonstrated by the longitudinal relation between identification and entitlement: Though significant longitudinal bivariate correlations were found between all five measurements of identification and entitlement, none of these relations were significant in the panel models.

The fact that there was no *direct* longitudinal association between reality TV viewing and adolescents' materialism, narcissism, and entitlement (i.e., rejecting Hypothesis 1a, Hypothesis 1b, and Hypothesis 1c) did not immediately rule out the possibility of observing *indirect* longitudinal relations between these variables (Hayes, 2013), and such indirect relations were in fact found. Reality TV viewing in Wave 1 was positively associated with wishful identification, overall identification, emotional empathy, cognitive empathy, and character merging in Wave 2 (i.e., accepting Hypothesis 2a, Hypothesis 3a, Hypothesis 4a, Hypothesis 5a, and Hypothesis 6a). Furthermore, apart from emotional empathy, all identification measures in Wave 1 were related to materialism in Wave 2 (i.e., rejecting Hypothesis 4b, yet accepting Hypothesis 2b, Hypothesis 3b, Hypothesis 5b, and Hypothesis 6b). Hence, similar to Lee et al. (2016), we found that the relationship between reality TV viewing and materialism was mediated by viewers' viewing experiences. Based on the differential susceptibility to media effects model (Valkenburg & Peter, 2013), we would have expected that a similar mechanism would apply to the relation between reality TV viewing and narcissism and entitlement, yet this was not the case. Neither narcissism nor entitlement in Wave 2 were associated with the identification measures in Wave 1 (i.e., rejecting the c- and d-Hypotheses for Hypothesis 2 to Hypothesis 6). This does not mean the differential susceptibility to media effects model needs to be rejected; it does mean, however, that the emotional response state is related to some media effects but not others.

One possible explanation for why reality TV viewing is longitudinally related to increased materialism but not narcissism or

entitlement is that the latter two character traits could be deemed less "socially acceptable" and, therefore, less attractive to mirror. Social comparison theory, and upward social comparison specifically, predicts that people strive for self-enhancement and only copy traits which make them feel better about themself. When reality TV cast members engage in materialistic behaviors (i.e., displaying their wealth or spending money), no-one seems at harm. However, when they engage in narcissistic or entitled behaviors, their "wins" go at the expense of others and often lead to interpersonal conflict (Leone et al., 2006). Future research could investigate how the different behaviors are portrayed in reality TV and how they are perceived by reality TV viewers. Also, it could explore ways to make more socially acceptable, yet still questionable behaviors less attractive. Perhaps adolescents are less likely to copy materialistic behaviors if reality TV shows feature storylines of how overspending can lead to debt and money anxiety (Watson, 2003) and to a subsequent decrease in self-esteem and life satisfaction (Dittmar et al., 2014).

Limitations

This study had three limitations. First, we used two waves instead of three, whereas it is best to test mediation hypotheses by measuring the independent variable (e.g., reality TV viewing) in Wave 1, the mediating variables (e.g., identification) in Wave 2, and the dependent variables (e.g., materialism, narcissism, and entitlement) in Wave 3. Second, the waves were spread six months apart which—depending on the relationship that is under scrutiny—can either be considered too short or too long (Slater, 2007). While the effects of reality TV viewing on materialism, narcissism, and entitlement may be so subtle that they need to grow over time to be picked up (Harmon, 2001), its effects on identification may be strong and fully realized after viewers have watched only a couple of episodes. The third and final limitation of this study was that it was conducted in the Winter of 2015 and Summer of 2016. Back then, most adolescents predominantly watched TV through a traditional TV set and did so in a synchronous manner, keeping up with episodes as they were released. However, since then online on-demand TV and streaming services have been on the rise, allowing for asynchronous viewing and binge-watching.

Suggestions for Future Research

Recently, Harmon and his team studied the cross-correlational relationship between watching TV content on TV and watching TV content on the Internet, on the one hand, and financial satisfaction, on the other hand. Importantly, the effect of viewing on TV was significant, but the effect of viewing on the Internet was not (Harmon et al., 2019). Though these findings did not pertain to materialism or adolescents, they do add urgency to the question whether the effects of traditional synchronous TV viewing and new forms of asynchronous TV viewing on adolescents are comparable in size. Binge-watching in fact has been found to expedite identification (Flayelle et al., 2020; Tukachinsky & Eyal, 2018) and could, therefore, also lead to stronger effects of reality TV viewing on materialism. Hence, future research is needed comparing the effects of reality TV viewing across platforms and devices.

The differential susceptibility to media effects model proved a fruitful starting point for this research and may be used to inspire

new studies on the effects of reality TV viewing among adolescents. Next to the emotional response state (i.e., identification), the model introduces cognitive and excitative response states as potential mediators of media effects. Valkenburg and Peter (2013, p. 228) defined the cognitive state defined as "the extent to which media users selectively attend to and invest cognitive effort to comprehend media content (i.e., the message, the story line, the motivations and perspectives of characters)," and the excitative state as "experienced degree of physiological arousal (i.e., the activation of the sympathetic nervous system) in response to media." Both types of response states can be used in the proposed research investigating how the different behaviors portrayed on reality TV are perceived and mirrored by reality TV viewers. It can be assumed that only behaviors that lead to approving thoughts and pleasant psychological arousal (e.g., excitement) are imitated, and that behaviors that lead to disproving thoughts and unpleasant psychological arousal (e.g., resentment) are not imitated and can even lead to counterreactions of viewers trying to avoid engaging in these behaviors.

The social comparison claims made by Opree and Kühne (2016) about adolescents seem to hold merit too: According to our results, adolescents look up to reality TV cast members, want to be like them, and copy some of their behaviors. Adolescents' reality TV viewing was related all forms of identification, and (apart from emotional empathy, as was explained earlier) all forms of identification with adolescents' materialism. This means that if one were to want to reduce materialism in adolescents, one can either implement interventions aimed at reducing adolescents' materialism all together (for instance, by promoting in-ward reflection, self-esteem, and the pursuit of high-quality interpersonal relationships; Kasser, 2016), or use interventions that are aimed at decreasing identification with reality TV content. Increasing adolescents' knowledge about the way reality TV shows are produced and highlighting the differences between the portrayed characters and events and the "real" characters and events could potentially alter adolescents' cognitive, emotional, and physiological reactions to the genre.

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