Abstract

While time spent using media has been linked to internalizing problems, few studies have explored the role that parents might play in these associations. The current study explored how controlling and autonomy supportive restrictive and active parental media monitoring was associated with adolescents’ internalizing problems via time spent using media (media multitasking, social media, tv, video games, music, reading, texting, and internet). The current study used data from a national study of teens ages 10-20 (*N* = 1193, 52% female, 68% white, 13% black, 11% Latino). Results suggested that only autonomy supportive restrictive media monitoring was associated with lower media use for both boys and girls on all platforms of media except reading. In turn, media multitasking was associated with higher levels of anxiety and depression, and social media use was associated with higher levels of anxiety. There were also a number of associations that varied as a function of adolescent sex. Discussion focuses on the links between parental media monitoring, media use, and adolescents’ internalizing symptoms.

Keywords: parental media monitoring, parental mediation, media, internalizing, adolescents

Public significance statement: When parents used autonomy supportive restrictive monitoring of their adolescents’ media, it was associated with lower levels of most types of media use and lower levels of depression and anxiety. In turn, media multitasking, social media use, and video game use were associated with higher levels of internalizing symptoms. These findings support the notion that children benefit when parents have restrictions on media that maximize adolescents’ autonomy.

Associations between Parental Media Monitoring, Media Use, and Internalizing Symptoms during Adolescence

Depression and anxiety are among the leading internalizing behavior diagnoses for adolescents and a major concern for parents and health professionals (Weinberger et al., 2017; NIMH, 2016), in part because of their relation to negative outcomes such as lower sleep quality (Palmer, Oosterhoff, Bower, Kaplow, Alfano, 2018), suicidal ideation (World Health Organization, 2018), addiction (Brenhouse, Sonntag, & Andersen, 2008; Kelley, Schocet, & Landry, 2004; Lai et al., 2015), and substance abuse (Hussong, Jones, Stein, Baucom, & Boeding, 2011; Pardini, Lochman, & Wells, 2004). Previous researchers have shown that adolescence is a developmental risk period for the presentation and exacerbation of internalizing behaviors (Hayward & Sanborn, 2002). Researchers have theorized that this increased risk for internalizing behaviors during adolescence may be due to a variety of factors including biological changes associated with the onset of puberty (Natsuaki et al., 2009), increased stress, perhaps due to increased autonomy (Graber & Sontag, 2009), a decline in positive affect (likely due to biological changes; Weinstein, Mermelstein, Hankin, Hedeker, & Flay, 2007), and increased cognitive skills which allow for rumination on negative and stressful events (Avenevoli & Steinberg, 2001).

Factors contributing to depressive symptomology are multifaceted, but research has suggested higher levels of internalizing behaviors are associated with media use (Houghton et al., 2018; Maras et al., 2015; Twenge, Joiner, Rogers, & Martin, 2018). These findings are especially relevant because over 70% of American teenagers (age 13-18) have, or have access to, a smartphone (Lenhart, 2015) and are spending nearly 9 hours a day on entertainment media (i.e. media outside of school and homework; Rideout, 2016). In conjunction with the rise in new media, research has also shown an increase in media-multitasking (i.e., engaging in multiple forms of media at once). While these results are somewhat disheartening, research has found that parental monitoring of their child’s media may be an effective way to attenuate the potentially negative effects of media use. Thus, the purpose of the current study was to better understand the role of parental media monitoring on adolescents’ internalizing behavior via reduced time spent with media using a national sample of adolescents, ages 10-20.

**Media Use and Internalizing behavior**

Media use has been associated with higher levels of internalizing symptomology during adolescence, which may be explained, at least in part, by the media practice model (Steele & Brown, 1995). The media practice model addresses the intentions of individuals in *selecting* media, the ways in which individuals *interact* with media, and the ways in which individuals *apply* media to their life. Media selection may occur because of biological or environmental factors, or simply out of convenience. Media interaction is the way that an individual interacts with media and interprets various messages. Media application is the way that the media messages are internalized and applied in day-to-day interactions. The media practice model gives us insights into why media may be associated with internalizing problems and raises issues of direction of effects. For example, the notion of media selection may suggest that adolescents with internalizing symptomology select certain types of media as a means to cope with a negative emotional state. In turn, or on the other hand, interaction with negative or isolating media may lead to increased levels of internalizing symptoms (Marino et al., 2016; Rubin, 1994; Spada, Langston, Nekcevic, Moneta, 2008), especially if harmful media messages are applied and internalized. Previous researchers have theoretically argued that it is not media use itself that is causing adolescents’ internalizing symptoms, but rather factors related to the content of the media and adolescents’ reasons for using the media. Indeed cross-sectional, self-report studies suggest that adolescents who are prone to being bored (Elhai, Vasquez, Lustgarten, Levine, & Hall, 2017) and who envy what they see on others’ social media sites (Tandoc, Ferrucci, & Duffy, 2015) are more likely to be depressed after engaging with the media than adolescents who are not using the media to alleviate boredom and do not feel envious of what they see online. Taken together, this theoretical model and empirical research suggest that the link between media use and adolescents’ internalizing symptomology is likely bidirectional.

Previous research conducted on this topic has been cross-sectional, making it difficult to determine direction of effects. This research has shown that adolescents (ages 14-18) who spent more time on new media reported higher levels of internalizing problems (Twenge et al., 2018), while another found that internet use specifically was associated with depression and suicidal ideation between ages 13 and 18 (Do, Shin, Bautista, & Foo, 2013). While both of these studies have established a link between media use and depressive symptomology, other studies have not found links when looking at more severe forms of depression (Jelenchick, Eickhoff, & Moreno, 2013). Longitudinal research adds to these findings by suggesting that higher levels of screen time, mobile phone use, and television viewing (Bickham, Hswen, & Rich, 2015; Houghton et al., 2018), as well as high levels of social media use (Frison & Eggermont, 2017; Nesi, Miller, & Prinstein, 2017) were associated with higher levels of internalizing problems over time. Though these studies suggest media use may be impacting internalizing problems, other research has found a longitudinal link suggesting young adolescents seek media to help cope with negative emotional states (Eschenbeck, Schmid, Schroder, Wasserfall, & Kohlmann, 2018). Taken together, theory and growing empirical evidence suggest that media may play a role in the development of internalizing problems during adolescence, but directionality, if it exists, is difficult to measure. That being said, there seems to be theoretical and empirical evidence to suggest that media use is associated to internalizing problems to some degree.

To further complicate these associations, because media has become so complex and multifaceted, a more nuanced approach may be beneficial. Adolescents’ lives today are saturated with media. Research typically struggles to keep up with the latest technology and is often behind what adolescents are using in terms of media and media content. Rather than focusing on one form of media, in their digitally immersive reality, it is important to focus on a variety of media to gain a clearer perspective on the influences of media in adolescents’ lives. Research has found some longitudinal links between social media use (Coyne, Padilla-Walker, Holmgren, Stockdale, 2018; Frison & Eggermont, 2017; Nesi et al., 2017), TV (Bickham et al., 2015), texting (Coyne, Padilla-Walker, Holmgren, 2018) and internalizing behaviors, but it is important to mention that another team of researchers found cross-sectional links that were no longer significant in longitudinal analyses (Houghton et al., 2018). In cross-sectional research, higher rates of internalizing symptoms have been associated with TV viewing (Barcaccia et al., 2018; Domingues-Montanari, 2017), video games (Holtz & Appel, 2011; Gentile et al., 2011), and social media use (Primack et al., 2017; Woods & Scott, 2016) compared to other platforms of media. Furthermore, a growing body of research suggests a link between media multi-tasking, such as listening to music while playing a video game or texting while watching a movie, and depression in college students, even after controlling for overall media use (Becker, Alzahabi & Hopwood, 2013; Reinecke, Aufenanger, Beutel, Dreier, Quiring, et al., 2017). While these associations have been established across various studies, we are not aware of a study that has considered multiple platforms of media to help us understand whether associations exist between and across media type. Adolescents use a variety of media, but not all adolescents use every media type. Therefore, it is important to take a more holistic approach to examining the relations between adolescent media use and internalizing behaviors. Thus, in the current study we explored traditional media (e.g. television, reading, music), new media (e.g. social media, internet, video games, texting), and media multitasking as they related to adolescents’ internalizing symptoms.

**Parental Media Monitoring and Internalizing Behavior via Adolescent Media Use**

Researchershave shown that parental media monitoring can be effective at reducing negative effects of media (Nathanson & Cantor, 2000). Parental monitoring usually involves either parent-child media-based conversations about media content (“active mediation”) or restrictions surrounding the amount of screen-time (“restrictive monitoring”; Gentile, Reimer, Nathanson, Walsh, & Eisenmann, 2014), media platform (Padilla-Walker, Coyne, Kroff, & Memmott-Elison, 2018) and/or content that the child is allowed to view (Gentile, Nathanson, Rasmussen, Reimen, & Walsh, 2012; Nathanson, 1999). While restrictive monitoring has been associated with less screen time (Collier et al., 2016), more reading time, and prosocial behavior (Gentile et al., 2014), as well as higher levels of internalizing behavior in preadolescence (Fardouly et al., 2018) and longitudinally in early adolescence (Bickham et al., 2015), it is typically viewed as less adaptive than active monitoring in later adolescence because of the adolescent’s need for higher levels of autonomy (Padilla-Walker, Coyne, & Collier, 2016) and more mature cognitive processes. Active monitoring is more effective at promoting developmentally appropriate autonomy because, using this strategy, the parent engages their child in conversations about media themes, characters, and content that promote critical thinking about the differences between the on-screen world and the real world (Nathanson & Cantor2000; Padilla Walker et al., 2018).

However, recent findings have suggested the *type* of media monitoring may not be as important as the *style* in which the monitoring is implemented. These findings posit that individuals will react more favorably to an autonomy-supportive parenting style whether it is classified as active or restrictive media monitoring (Fikkers, Potrowski, & Valkenburg, 2017). Theoretically, a controlling monitoring style impedes upon an individual’s volitional actions through regulations and leaves the responsibility for deciding upon proper media in the hands of the parent. On the other hand, autonomy-supportive media monitoring allows the parent to guide the adolescent in thinking critically about media influences in his/her life through discussions which transfer the responsibility to the adolescent. When the adolescent takes charge of his/her media consumption, he/she is better able to engage in critical thinking and learn to make decisions about media use based on internalized values, rather than on punishment or restrictions from the parent (Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013). This process may help to attenuate the negative effects of media. Empirically, this notion has been supported with research finding that both autonomy-supportive active and autonomy-supportive restrictive monitoring were associated with higher media disclosure to parents and more prosocial behavior toward family members, while the only parenting approach that led to lower levels of media use was autonomy-supportive restrictive monitoring (Padilla-Walker, et al., 2016; Padilla-Walker, Stockdale, Son, Coyne, & Stinnett, 2018). Yet no known research has examined the influence of parental media monitoring on adolescent media use, taking into account a wide variety of media types, and adolescent internalizing behavior.

**Current Study**

The current study sought to explore the links between parental media monitoring and adolescents’ internalizing symptoms via adolescents’ media use. Based on a substantial body of research suggesting that parental media monitoring is associated with lower-levels of media use (Bickham et al., 2015; Collier et al., 2016; Fardouly et al., 2018; Gentile et al., 2014) but fewer studies on style of media monitoring, we explored associations between autonomy supportive and controlling active and restrictive media monitoring and media use. We expected autonomy supportive media monitoring to be more consistently associated with lower levels of media use than controlling media monitoring. Based on the media practice model (Steele & Brown, 1995) and empirical research that has found longitudinal links between media use and adolescents’ internalizing symptoms (Bickham, Hswen, & Rich, 2015; Frison & Eggermont, 2017; Houghton et al., 2018; Nesi, Miller, & Prinstein, 2017), we hypothesized that higher levels of media use would be associated with internalizing problems, but explored how these relations might vary as a function of the type of media used. Finally, we explored the indirect effects of parental media monitoring on adolescents’ internalizing problems via media use, and hypothesized that media monitoring would be associated with lower levels of internalizing problems via lower levels of media use.

Furthermore, there are mean differences in both media use and internalizing behavior as a function of adolescent sex and age (e.g., Altemus, Sarvaiya, & Epperson, 2014; Breslau et al., 2017). Females generally report higher levels social media and lower levels of video game use than do males (Rideout, 2016). Females also report higher levels of internalizing behaviors in adolescence (Mojtabai, Olfson, & Han, 2016) and into adulthood (Altemus et al., 2014) than do males. Likewise, differences in media use have been found as a function of adolescent age, such as rates of listening to music and social media use being higher among late compared to early adolescents (Rideout, 2016). Younger adolescents also have lower rates of internalizing behavior than later adolescents (Breslau et al., 2017). Therefore, in the current study we will examine the relations between parental media monitoring, media, and internalizing problems while also examining the roles of adolescent age and sex.

**Method**

**Participants and Procedures**

Participants were taken from a national quota sample of teenagers who participated in an on-line survey as part of a larger study examining adolescent media use. The current sample consisted of 1155 adolescents ages 10-20 (51% female), with 315 early adolescents (ages 10-12), 315 middle adolescents (ages 13-15) and 525 late adolescents (ages 16+). Researchers have found that quota samples generally result in comparable results to probability-based samples (Cumming, 1990; Pew Research Center, 2016). Ethnicity was 69% European American, 13% African American, 11% Hispanic, and 5% Asian American. Average household income was between $35 and $49,000, with 30% of the sample making less than $35,000 annually and only just over 10% making more than $100,000 annually.

After obtaining IRB approval from the sponsoring university, participants were recruited via Qualtrics (a U.S. research firm that collects data for researcher, private, and public corporations) from an online panel of participants across the United States who had previously agreed to participate in research. Participants were given a brief online survey that took less than 20 minutes to complete and were compensated on a sliding scale in points (which are accumulated to receive goods or credits to places such as iTunes, Amazon, etc., gift cards, or cash). There were very few instances of missing data, but they were dealt with using the FIML feature of MPLUS.

**Measures**

**Media monitoring.** Adolescents responded to a 12-item adapted measure of media monitoring taken from the Perceived Parental Media Monitoring Scale (Valkenburg et al., 2013). The measure was adapted for the current study in an attempt to make it shorter for the on-line survey format. In this measure, adolescents are presented four main items: two that are representative of restrictive monitoring and two active monitoring (e.g., “How often do your parents tell you that you are not allowed to play video/computer games because they are meant for older kids? and “How often do your parents tell you that what you see in movies and commercials is different than real life?” Items are answered on a five-point Likert scale from 1 *(never)* to 5 *(very often).* Directly after each main item, adolescents were presented with follow-up items to identify *how* their parents monitor their media use, including a prompt of, “And if your parents would tell you this, how would they do this?.” Items were designed to assess if parents were attempting to control adolescents’ media use and exposure or give information and support while encouraging adolescents’ autonomy regarding media. Two controlling items (*r* = .16-.47, *p* < .001, e.g., “They would…get angry if I still want to play those games.”) and two autonomy supportive items (*r* = .21-.65, *p* < .001, e.g., “They would…explain to me why it’s better to not play those games.”) were included for both restrictive and active monitoring on a five-point Likert scale from 1 *(not at all true)* to 5 *(completely true).* We took the average of the two items in each category, which resulted in four scales (controlling restrictive and active monitoring, and autonomy supportive restrictive and active monitoring), with higher scores indicative of higher levels of parental monitoring.

**Media use.** Adolescents’ time spent using a variety of platforms of media was assessed using eight items taken from (Stockdale, Coyne, & Padilla-Walker, 2018). The stem of each question was “How much time do you spend on the following media activities on a typical day” and adolescents responded to watching TV programs, playing video games, listening to music, reading magazines or books, spending time on the internet (not doing any of the other activities listed above), social media, and texting on a cell phone on an scale of 1 (*none*) to 9 (*9 or more hours*). Adolescents also answered one question about media multitasking (Baumgartner, Weeda, van der Heijden, & Huizinga, 2014; “While using any type of media (watching TV, listening to music, talking/texting on the phone, etc.) how often do you do other activities involving the media?”) on a scale of 1 (*never*) to 4 (*very often*).

**Internalizing problems.** Adolescents reported on their own anxiety using three items from the Spence Children’s Anxiety Scale (Spence, 1998, α = .81). Participants answered on a four-point Likert-type scale from 1 (*not at all*) to 4 (*a lot*), with higher scores indicating higher levels of anxiety. Example items include “When I have a problem my heart beats really fast” and “I worry that something bad will happen to me.”

Depression was measured using three items from the Center for Epidemiological Studies Depression Scale for Children (α = .88, CES-DC; Faulstich, 1986). Participants were asked to indicate how true several statements were of themselves for the past week. Responses ranged on a four-point Likert-type scale from 1 (*not at all*) to 4 (*a lot*), with higher scores indicating greater depressive symptoms. Example items include “I wasn’t able to feel happy, even when my family or friends tried to make me feel better” and “It was hard to get started doing things.”

**Results**

**Descriptive Statistics and Correlations**

Means, standard deviations, and correlations between all study variables are in Table 1. It is of note that parental media monitoring was differentially and not consistently associated with media use, but overall restrictive approaches were associated with lower levels of media use, and active approaches with higher levels. In addition, controlling approaches to media monitoring were associated with higher levels of internalizing problems, and autonomy supportive approaches to lower levels. Media multitasking, social media use, listening to music, and using the internet were also positively associated with anxiety and depression.

We conducted t-tests to explore sex differences on all variables, and these results are presented in Table 2. It is of note that girls reported using social media, listening to music, and texting more than did boys, and boys reported using video games more than did girls. Girls also reported higher levels of depression and anxiety than did boys. Finally, we used univariate ANOVAs to explore differences on all study variables as a function of the child’s age (10-12 early, 13-15 middle, 16-20 late adolescence), and these results are presented in Table 3. It is of note that those in late adolescence reported lower levels of media monitoring than did those in early and middle adolescence. Children in late adolescence also reported listening to more music, using the internet more, and higher levels of anxiety and depression than did those in early or middle adolescence.

**Associations Between Parental Media Monitoring, Media Time, and Adolescents’ Depression and Anxiety**

Path analysis using structural equation modeling was explored considering parents’ use of both controlling and autonomy supportive restrictive and active parental monitoring as predictors of adolescents’ time with various types of media (multitasking, social media, television, video games, music, reading, texting and internet). Media use was then used to predict adolescents’ depression and anxiety (which were the only variables measured with at least three-items, and as such they were assessed using latent variables). Controls included adolescent sex (0 = male, 1 = female), adolescent age, and household income.

Model fit was acceptable (2(83) = 551.35, *p* < .001, CFI = .942, RMSEA = .067). In terms of direct paths, results suggested that controlling styles of both restrictive and active monitoring were associated with higher levels of anxiety (β = .14, *p* < .001 for restrictive; β = .09, *p* = .020 for active) and depression (β = .10, *p* = .003 for restrictive; β = .11, *p* < .001 for active), whereas autonomy supportive restrictive monitoring was associated with lower levels of anxiety (β = -.10, *p* = .011) and depression (β = -.14, *p* < .001) and autonomy supportive active monitoring was associated with lower levels of depression (β = -.09, *p* = .019). Thus, parental media monitoring had direct effects on adolescents’ internalizing problems, with controlling parenting associated with higher levels of anxiety and depression.

Controlling restrictive monitoring was associated with higher levels of time using social media (β = .10, *p* = .008) and television (β = .13, *p* < .001), while controlling active monitoring was associated with more time media multitasking (β = .11, *p* = .002) and using social media (β = .12, *p* < .001), video games (β = .14, *p* < .001), music (β = .11, *p* < .001), reading (β = .11, *p* = .002), texting (β = .09, *p* = .023), and the internet (β = .13, *p* < .001). On the other hand, autonomy supportive restrictive monitoring was associated with using less social media (β = -.16, *p* < .001), television (β = -.13, *p* < .001), video games (β = -.10, *p* = .003), music (β = -.15, *p* < .001), texting (β = -.12, *p* = .004), and internet (β = -.17, *p* < .001), while autonomy supportive active monitoring was associated with using more social media (β = .14, *p* < .001), television (β = .19, *p* < .001), video games (β = .12, *p* < .001), music (β = .13, *p* < .001), reading (β = .14, *p* < .001), and texting (β = .11, *p* = .007). Thus, the only type of media monitoring associated with lower levels of media use was autonomy supportive restrictive monitoring, and both types of controlling monitoring, as well as autonomy supportive active monitoring were associated with higher levels of media use.

In turn, media multitasking was associated with higher levels of both anxiety (β = .23, *p* < .001) and depression (β = .17, *p* < .001). Social media use (β = .16, *p* < .001) was associated with higher levels of anxiety, and video game use was associated with higher levels of both anxiety (β = .10, *p* = .010) and depression (β = .10, *p* = .004). In contrast, television was associated with lower levels of both anxiety (β = -.10, *p* = .002) and depression (β = -.12, *p* < .001).

In terms of controls in this model, being female was associated with more time spent with social media (β = .15, *p* < .001), music (β = .08, *p* < .001), and texting (β = .11, *p* < .001); but less time with video games (β = -.41, *p* < .001), as well as higher levels of both anxiety (β = .16, *p* < .001) and depression (β = .10, *p* = .002). Adolescent age was associated with higher levels of media multitasking (β = .26, *p* < .001), social media (β = .11, *p* = .004), music (β = .17, *p* < .001), and texting (β = .15, *p* < .001); as well as higher levels of anxiety (β = .13, *p* = .003) and depression (β = .12, *p* = .002). Finally, household income was associated with less time spent with music (β = -.10, *p* = .007), and internet (β = -.23, *p* < .001), as well as lower levels of anxiety (β = -.12, *p* = .003) and depression (β = -.13, *p* < .001).

Because direction of effects cannot be determined with cross-sectional data, we explored an alternative model, with anxiety and depression predicting time spent with various forms of media, in turn predicting parental media monitoring. This model had lower model fit than the proposed model above (2Δ (35) = 251.31, *p* < .001), providing some level of support for the hypothesized model.

**Indirect Effects of Parental Monitoring on Internalizing Problems**

Using the IND command in MPLUS, we next explored the indirect effects of parental monitoring on internalizing problems via media time using 95% confidence intervals and 2000 bootstrap samples. Given that autonomy supportive restrictive monitoring was the only type of parenting associated with lower levels of media use, we were surprised to find that there were no significant indirect effects between autonomy supportive restrictive monitoring and internalizing problems via any type of media use. Indeed, few indirect effects were significant, with one exception. Controlling active parental media monitoring had significant overall positive indirect effects with both anxiety (sum of indirect = .03[.01-.20], *p* = .018) and depression (sum of indirect = .023 [.01-.25], *p* = .025). Individual indirect effects suggested that the positive link between controlling active media monitoring and both anxiety and depression were explained by increases in media multitasking (indirect = .02, *p* = .013; indirect = .015, *p* = .027) and video game use (indirect = .01, *p* = .040; indirect = .014, *p* = .058). Thus, largely media use did not explain the links between parental media monitoring and internalizing problems, except in the case of poorly executed parental media monitoring, specifically, active monitoring done in a controlling manner.

**Multiple Group Model by Adolescent Age**

To explore whether associations in the current model differed as a function of adolescents’ age, we performed multiple group analyses with age categorized as early (age 10-12), middle (13-15) and late (16+) adolescents (unconstrained model: *Χ2*(264) = 798.17, *p* < .001, CFI = .917, RMSEA = .042). Model comparison using *Χ2*change suggested that constraining all paths to be equal as a function of adolescent age resulted in a significant decrease in model fit (*Χ2* (152) = 292.28, *p* < .001). Because an overall difference was found as a function of age, each structural path was explored individually to determine which paths could be constrained across age, and which should be left free to vary. This analysis represented 68 paths (including controls), and follow-up analyses suggested that 13 paths could not be constrained to be equal, so these 13 paths were left free to vary, while all other paths were constrained to be equal (2(390) = 964.99, *p* < .001, CFI = .910, RMSEA = .036). Controlling active and autonomy supportive restrictive and active monitoring functioned similarly for all ages, but controlling restrictive differed in one case. Controlling restrictive monitoring was associated positively with media multitasking for middle adolescents (β = .16, *p* = .005), but not for early (β = -.05, *p* = .736) or late (β = -.01, *p* = .925) adolescents.

In terms of relations between media and mental health, media multitasking was associated more strongly with anxiety for early (β = .26, *p* < .001) and late adolescents (β = .28, *p* < .001) than for and middle adolescents (β = .16, *p* < .001); reading was negatively associated with anxiety for early adolescents (β = -.11, *p* = .036), not associated significantly for middle adolescents, and positively associated with anxiety for late adolescents (β = .11, *p* =.011); and reading was negatively associated with depression for early (β = -.11, *p* = .027) and middle (β = -.12, *p* = .030) adolescents, but positively associated with depression for late adolescents (β = -.16, *p* < .001). Given only four of the paths that could not be constrained as a function of age were in relation to the links between parenting and media or media and mental health (and not controls), we feel confident saying that the current model functions quite similarly across early, middle, and late adolescents.

In terms of controls, girls reported listening to more music than boys during early (β = .15, *p* < .001) and middle (β = .20, *p* < .001) adolescence, but there was no gender difference by late adolescence (β = .03, *p* = .489) and girls texted more than boys in middle (β = .23, *p* < .001) adolescence, but not in early (β = .05, *p* = .405) or late adolescence (β = .08, *p* = .069). Very few paths from income to outcome variables could be constrained across age. Specifically, household income was not associated with media multitasking for early (β = .07, *p* = .244) or middle (β = .11, *p* = .051) adolescents, but was significantly negatively associated for late adolescents (β = -.12, *p* = .007); income was associated with less TV time during early (β = -.15, *p* = .007) adolescence, but not middle (β = .01, *p* = .839) or late (β = -.01, *p* = .908); income was related to video game use during middle (β = .10, *p* = .040) adolescence, but not early (β = -.06, *p* = .219) or late (β = -.05, *p* = .189); income was associated with reading during early (β = .15, *p* = .007) and late (β = -.11, *p* = .015) adolescence, but not middle (β = .05, *p* = .306); income was associated with less internet time during late (β = -.20, *p* < .001) adolescence, but not early (β = .05, *p* = .302) or middle (β = -.02, *p* = .708); and income was not related to anxiety or depression during early adolescence (β = .05, *p* = .365; β = -.04, *p* = .385), but it was during middle (β = -.10, *p* = .032; β = -.11, *p* = .009) and late (β = -.21, *p* < .001; β = -.20, *p* < .001) adolescence.

**Multiple Group Model by Adolescent Sex**

To explore whether associations in the current model differed as a function of adolescents’ sex (0 = boys, 1 = girls), we performed multiple group analyses (unconstrained model: 2(172) = 662.68, *p* < .001, CFI = .934, RMSEA = .049). Model comparison using *Χ2*change suggested that constraining all paths to be equal as a function of adolescent sex resulted in a significant decrease in model fit (*Χ2* (92) = 435.64, *p* < .001). Each structural path was explored to determine which paths could be constrained across sex, and which should be left free to vary. This analysis represented 68 paths (including controls), and follow-up analyses suggested that 5 paths could not be constrained to be equal, so these 5 paths were left free to vary, while all other paths were constrained to be equal (2(213) = 702.55, *p* < .001, CFI = .934, RMSEA = .044).

All paths from media monitoring to media use and internalizing problems were constrained to be equal between boys and girls, with no decrease in model fit, suggesting that parental media monitoring functions similarly for boys and girls. The paths that could not be constrained to be equal were those from media use to internalizing problems. Namely, frequency of television use (β = -.12, *p* = .012) and texting (marginally; β = -.11, *p* = .060) were negatively associated with anxiety for boys, but not for girls (β = -.06, *p* = .125; β = -.02, *p* = .711), whereas video game use was positively associated with anxiety for boys (β = .16, *p* = .002) but not for girls (β = .05, *p* = .296). Frequency of television use was also more strongly negatively associated with depression for boys (β = -.14, *p* = .002) than for girls (β = -.09, *p* = .029); and video game use was positively associated with depression for boys (β = .21, *p* < .001) but not girls (β = .01, *p* = .745).

**Discussion**

The present study explored the relations between parental media monitoring, adolescent media use in a variety of forms, and adolescents’ internalizing behaviors. One of the most important findings was that parental controlling restrictive, controlling active, and autonomy supportive active media monitoring were related to adolescents’ increased media use. Previous researchers have shown that restrictive parental media monitoring is related to increased adolescent media use (Gentile et al., 2014) and researchers have argued that such restrictive rules make limited media a “forbidden fruit” that encourages *more* adolescent media use and increased media hiding from parents (Bijvank, Konijn, Bushman, & Roelofsma, 2009; Bushman, 2003; 2006). However, these previous studies have failed to take into consideration controlling versus autonomy supportive styles of parental media monitoring. In the current study, the only parental monitoring style that was associated with less media time for adolescents was autonomy-supportive restrictive monitoring. Adolescents, with their expanded cognitive capacities and increased autonomy, still benefit from rules, regulations, and guidance by parents. Perhaps parents who can balance the need for regulations regarding the media with the need to respect, support, and encourage the autonomy of their adolescents create a family environment and parent-child relationship that fosters clear and open communication, and support for and compliance with family rules, including media use.

It is also of note that both controlling approaches to media monitoring were directly associated with higher levels of internalizing problems, while autonomy supportive approaches were associated with lower levels of internalizing problems. Previous research has shown that controlling parenting styles, in general, are related to internalizing behavior (Soenens, Vansteenkiste, & Van Petegem, 2015; Williams, 2009), and the current study adds to this by suggesting that controlling parenting styles regarding media use are also directly related to internalizing behaviors during adolescence. Controlling parenting styles may lead adolescents to spend more time with the media, as a way to escape and express their own identity and culture (Arnett, 2004), which may place these teens may be at increased risk for excessive media time and increased internalizing problems. Likewise, these teens may not have an open and supportive communication pattern with their parents, therefore they may be more likely to internalize problems instead of reaching outward for support and help from parents.

**Links Between Media Use and Adolescents’ Internalizing Symptoms**

Another important finding of the current study was that media multitasking was related to higher levels of internalizing problems in adolescents. Previous research examining young adolescent females’ media multitasking found that media multitasking was related to poorer social relationships and interactions, online and in real life (Pea et al., 2012), which may help explain the relations between media multitasking and internalizing behaviors in the current study. However, other longitudinal, lab-based assessments of media multitasking have found that young adults multitask in order to fulfill an emotional need, even though media multitasking impedes cognitive performance (Wang & Tchernev, 2012). This study would suggest that the relations between media multitasking and adolescent internalizing behaviors may be explained by adolescents’ motivations and reasons for media multitasking in the first place. The cross-sectional nature of the current study does not allow for the examination of direction of effects or the disentangling of these two explanations. However, it is likely a bidirectional relationship with adolescents who are experiencing internalizing symptoms being more likely to media multitask in order to meet an emotional need, while at the same time media multitasking, and the content of the variety of media adolescents are exposing themselves to, increases social isolation and risk for internalizing symptoms.

Also of importance, the current study found that social media and video game were associated with internalizing symptoms. Previous researchers have shown a consistent relationship between social media use and internalizing symptoms (O’Keeffe & Clarke-Pearson, 2011), which is likely due to the content of social media itself. Frequently people portray their best selves, only the happiest and perfect moments on social media (Perloff, 2014). As a result, teens may compare their worst moments to their peers’ best moments, increasing feelings of depression, anxiety, social exclusion, and hopelessness. In fact, young adults who are envious of other’s social media posts are more likely to show depressive symptoms, while those who are not envious do not display this relationship (Tandoc et al., 2015). Thus, the current findings are consistent with past research and suggest the need to consider motivation for social media use, as well as social media content. In terms of video games, teens may use video games as an immersive way to escape their own lives to enter a world of fantasy (Ryan, Rigby, & Przybylski, 2006). However, the online communities of video games can be hostile (Yang, 2012) and the majority of the top selling video games are violent (Dill, Gentile, Richter, & Dill, 2005). Exposure to this content (rather than video games themselves) may be the salient mechanism promoting adolescent internalizing symptoms, so future research should consider this possibility. Alternatively, if displacement from social interaction is the mechanism in this regard, it is possible that video games played in isolation are associated with internalizing symptoms, while those played with friends or family are not, which should be explored in future research.

Interestingly, the current study did not find any relationships between listening to music, reading, texting, or internet use (excluding social media) and adolescents’ internalizing symptoms. This supports the assertion that not all media is created equal, has equal effects, or should be treated the same in the research. It is important for future researchers to continue to take a more holistic view of adolescent media use, by including multiple media types, and how these differing types of media are related to adolescent behavioral outcomes.

**The Moderating Role of Adolescent Sex and Age**

The current study found minimal differences as a function of adolescent sex and age in regards to the relations between parental media monitoring, media use, or internalizing behaviors. Overall, this suggests that the model in the current study functioned similarly across adolescents, with a few exceptions. In line with past research, girls spent more time using social media (Nesi & Prinstein, 2015) and texting (Ogletree, Fancher, & Gill, 2014) than did adolescent boys, and boys spent more time playing video games (Greenberg, Sherry, Lachlan, Lucas, & Homstrom, 2008). Likewise, girls displayed higher levels of internalizing symptoms (Altemus et al., 2014; Breslau et al., 2017). In addition to mean differences, moderation analyses in the current study found that links between media and internalizing problems were different for boys and girls in some cases. It is of note that positive associations between media multitasking and depression and anxiety and social media and anxiety did not differ as a function of adolescent gender, but all other paths did. Namely, video games were positively associated with depression and anxiety for boys, but not girls; and television and texting were negatively associated with depression and anxiety (only anxiety for texting) for boys, but not girls. These findings suggest that not only do boys and girls use different media at different levels, but also that media might differentially impact boys and girls, with special focus on the negative relations between video games and internalizing problems for boys. These findings also highlight some of the positive roles that television and texting might play, especially in the lives of boys. It is possible that these types of media are helping boys to engage in social relationships that protect against internalizing symptoms, or these differences could be because television and texting may contain less violent content than does video games. Future research is needed to more fully understand these differences.

In terms of age, overall parental media monitoring was less frequent for late adolescents compared to early and middle, and late adolescents used higher levels of internet and listened to music more than early or middle adolescents, which is consistent with past research (Rideout, 2016). In addition, late adolescents displayed more internalizing symptoms than early and middle adolescence, which is not surprising (Breslau et al., 2017). Beyond mean differences, most of the paths that could not be constrained to be equal as a function of age were in regards to controls, with a few minor exceptions. One worth discussing is that reading was associated with lower levels of anxiety and depression for early and middle adolescents, but with higher levels for late adolescents. While perplexing and not supported by any research of which we are aware, it is possible that the social demands of late adolescence and the transition to adulthood are such that reading (which is a typically solitary activity) increases isolation or is engaged in as a response to isolation. Clearly future research is needed, as reading in and of itself has not often been highlighted as maladaptive.

**Limitations and Conclusions**

While the current study adds important information regarding parental media monitoring, adolescent media use, and adolescent internalizing behaviors to the current literature, it is not without limitations. The current study was cross-sectional and cannot speak to directionality of effects. While it is of note that both theoretical (Steele & Brown, 1995) and empirical (Bickham, Hswen, & Rich, 2015; Frison & Eggermont, 2017; Houghton et al., 2018; Nesi, Miller, & Prinstein, 2017) research supports the direction of effects postulated in the current study, bidirectional relations are also likely. Thus, future researchers should examine these variables longitudinally in order to disentangle the direction of effects and determine whether these relations are short-term or long-term in nature. It is also important to note that the effects sizes of significant paths in the current study were small to moderate, so while significant, the links between parenting and media use and between media use and internalizing problems should not be over-stated. It is also of note that indirect effects were generally not significant in the current study, especially not in the hypothesized directions. Thus, we can conclude that parental monitoring is associated with internalizing symptoms and that media is associated with internalizing symptoms, but we learned little about the mechanisms that might explain why parental media monitoring is associated with lower or higher levels of internalizing symptoms. Future research should explore additional mediators such as critical thinking skills, relationship quality, and media content.

Even considering the limitations mentioned above, the current study adds important insights into the role of parental media monitoring style and adolescent media use as they relate to adolescents’ internalizing symptoms. Most importantly, this study highlights the need to consider parental media monitoring in context of the style in which it occurs. Namely, only autonomy supportive restrictive media monitoring was associated with lower levels of media use, suggesting that teens of all ages can benefit from media rules and limits if they are delivered with the intent to maximize autonomy. Findings also highlighted links between media multitasking and internalizing problems, and suggested that social media and video games (the latter for boys only) were also linked to higher levels of internalizing symptoms. These findings suggest utility in parents and educators being more award of media multitasking, video game use, and social media use as potential risk factors for youth. Findings also suggest that future research should consider different types of media because while some platforms may be more detrimental, others may be protective (e.g., texting and television for boys). Adolescence is now a time of media immersion, and it is important to understand what parents can do to help shape children’s media choices and protect against problem behaviors for those growing up in a media saturated society.

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Table 1. *Descriptive Statistics and Correlations for Continuous Study Variables*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1. Age | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. Income | -.64\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3. Controlling restrictive | -.09\*\* | .09\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4. Controlling active | .14\*\* | -.10\*\* | .28\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |
| 5. Autonomy Supportive Restrictive | -.31\*\* | .23\*\* | .22\*\* | -.08\* | - |  |  |  |  |  |  |  |  |  |  |  |
| 6. Autonomy Supportive Active | -.23\*\* | .23\*\* | -.08\* | -.47\*\* | .34\*\* | - |  |  |  |  |  |  |  |  |  |  |
| 7. Media Multi-tasking | .25\*\* | -.13\*\* | 0.05 | .15\*\* | -.07 | .10\*\* | - |  |  |  |  |  |  |  |  |  |
| 8. Social Media | .15\*\* | -.07\* | .09\* | .11\*\* | -.07 | -.02 | .24\*\* | - |  |  |  |  |  |  |  |  |
| 9. TV | .04 | -.04 | .10\*\* | 0.02 | -.05 | .10\*\* | .07\* | .29\*\* | - |  |  |  |  |  |  |  |
| 10. Video Games | .04 | -.04 | .01 | .09\*\* | -.06 | .04 | .05 | .15\*\* | .34\*\* | - |  |  |  |  |  |  |
| 11. Music | .32\*\* | -.22\*\* | .01 | .11\*\* | -.16\*\* | -.05 | .24\*\* | .45\*\* | .26\*\* | .33\*\* | - |  |  |  |  |  |
| 12. Reading | .03 | .00 | 0.02 | 0.05 | 0.03 | .07\* | .05 | .16\*\* | .29\*\* | .24\*\* | .31\*\* | - |  |  |  |  |
| 13. Texting | .10\*\* | -.01 | 0.05 | .07\* | -.09\* | .00 | .21\*\* | .53\*\* | .30\*\* | .13\*\* | .39\*\* | .11\*\* | - |  |  |  |
| 14. Internet | .38\*\* | -.27\*\* | 0.02 | .15\*\* | -.17\*\* | -.12\*\* | .29\*\* | .52\*\* | .27\*\* | .29\*\* | .49\*\* | .20\*\* | .33\*\* | - |  |  |
| 15. Anxiety | .27\*\* | -.23\*\* | .14\*\* | .22\*\* | -.14\*\* | -.21\*\* | .29\*\* | .20\*\* | -.02 | .02 | .14\*\* | .02 | .05 | .17\*\* | - |  |
| 16. Depression | .31\*\* | -.28\*\* | .11\*\* | .26\*\* | -.22\*\* | -.27\*\* | .27\*\* | .15\*\* | -.02 | .08\*\* | .21\*\* | .06\* | .06 | .21\*\* | .62\*\* | - |
| *M* | 15.05 | 5.41 | 3.26 | 2.86 | 3.75 | 3.88 | 2.41 | 4.19 | 4.54 | 4.10 | 4.77 | 3.04 | 4.22 | 4.79 | 2.50 | 1.82 |
| *SD* | 2.71 | 2.89 | 1.00 | 1.00 | .93 | .84 | .85 | 1.77 | 1.69 | 1.99 | 1.78 | 1.60 | 1.87 | 1.85 | .83 | .85 |

\**p* < .05  \*\**p* < .01

Table 2. *Mean Differences in Study Variables as a Function of Gender*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Males | Females |  |
| Variable | *M (SD)* | *M (SD)* | t-value |
| 1. Age | 14.95 (3.13) | 15.05 (3.20) | -.58 |
| 2. Income | 4.96 (3.00) | 4.70 (3.07) | 1.51 |
| 3. Controlling restrictive | 3.20 (.99) | 3.29 (1.02) | -1.30 |
| 4. Controlling active | 2.80 (.97) | 2.79 (.99) | .16 |
| 5. Autonomy Supportive Restrictive | 3.77 (.97) | 3.80 (.91) | -.51 |
| 6. Autonomy Supportive Active | 3.90 (.80) | 3.84 (.86) | 1.22 |
| 7. Media Multi-tasking | 2.25 (.88) | 2.34 (.91) | -1.70 |
| 8. Social Media | 3.96 (1.86) | 4.43 (1.75) | -3.98\*\*\* |
| 9. TV | 4.37 (1.80) | 4.37 (1.66) | .03 |
| 10. Video Games | 4.78 (1.82) | 3.20 (1.73) | 15.13\*\*\* |
| 11. Music | 4.32 (1.98) | 4.62 (1.83) | -2.73\*\* |
| 12. Reading | 2.86 (1.63) | 2.96 (1.50) | -1.05 |
| 13. Texting | 3.84 (1.89) | 4.21 (1.85) | -3.00\*\* |
| 14. Internet | 4.43 (2.12) | 4.62 (1.95) | -1.58 |
| 15. Anxiety | 2.36 (.82) | 2.58 (.85) | -4.60\*\*\* |
| 16. Depression | 1.75 (.84) | 1.88 (.89) | -2.60\*\* |

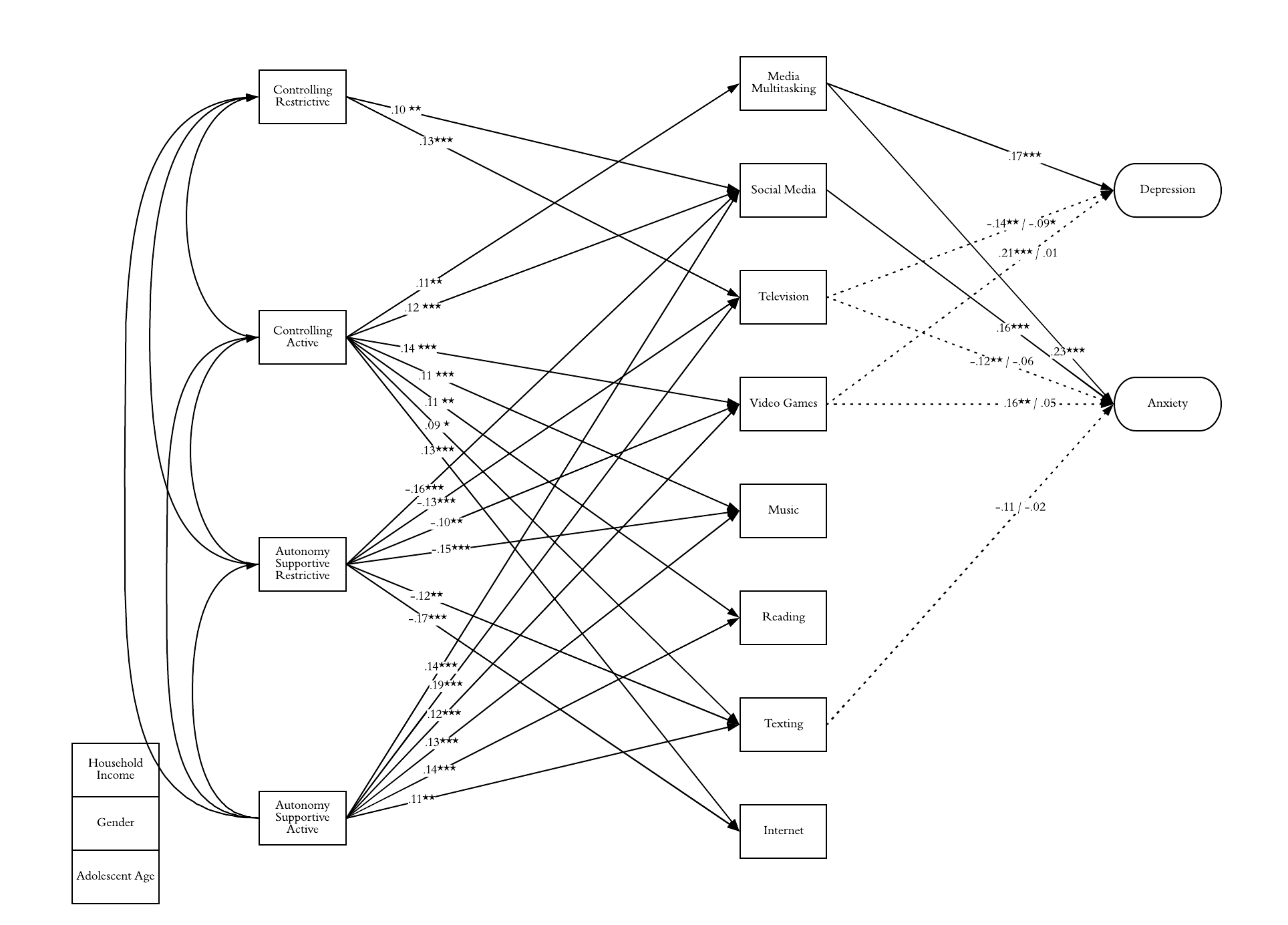
\**p* < .05, \*\**p* < .01, \*\*\**p* < .001.

Table 3. *Mean Differences in Study Variables as a Function of Age*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Early | Middle | Late |  |
| Variable | *M (SD)* | *M (SD)* | *M (SD)* | F-value |
| 1. Income | 6.58 (2.32)a | 6.66 (1.91)a | 3.86 (3.05)b | 83.13\*\*\* |
| 2. Controlling restrictive | 3.44 (0.95) | 3.27 (0.98) | 3.18 (1.03) | 2.64 |
| 3. Controlling active | 2.79 (1.04)ab | 2.73 (0.99)a | 2.99 (0.99)b | 4.27\* |
| 4. Autonomy Supportive Restrictive | 4.07 (0.79)a | 3.93 (0.83)a | 3.47 (0.99)b | 23.38\*\*\* |
| 5. Autonomy Supportive Active | 4.05 (0.70)a | 4.08 (0.65)a | 3.63 (0.96)b | 21.41\*\*\* |
| 6. Media Multi-tasking | 2.35 (0.84) | 2.34 (0.78) | 2.49 (0.89) | 2.21 |
| 7. Social Media | 3.87 (1.67) | 4.30 (1.79) | 4.25 (1.79) | 2.45 |
| 8. TV | 4.60 (1.62) | 4.46 (1.67) | 4.57 (1.74) | .36 |
| 9. Video Games | 4.24 (1.96) | 4.03 (1.84) | 4.09 (2.13) | .41 |
| 10. Music | 4.33 (1.53)a | 4.55 (1.62)a | 5.16 (1.94)b | 11.43\*\*\* |
| 11. Reading | 3.00 (1.59) | 2.96 (1.57) | 3.12 (1.64) | .625 |
| 12. Texting | 3.90 (1.82) | 4.19 (1.73) | 4.37 (1.98) | 2.53 |
| 13. Internet | 4.49 (1.91)a | 4.48 (1.73)a | 5.18 (1.86)b | 10.10\*\*\* |
| 14. Anxiety | 2.40 (0.79)a | 2.37 (0.79)a | 2.67 (0.85)b | 8.82\*\*\* |
| 15. Depression | 1.64 (0.72)a | 1.72 (0.78)a | 1.98 (0.92)b | 8.74\*\*\* |

*Note.* Differing superscripts denote significant differences at p <.05.

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001.



*Figure 1.* Associations Between Parental Media Monitoring, Media Use, and Internalizing Problems

*Note.* 2(83) = 551.35, *p* < .001, CFI = .942, RMSEA = .067. Only significant standardized paths are shown, dashed lines indicate paths that were left free to vary by adolescent sex. Boys values are before the slash, girls values are after. Direct paths from media monitoring to internalizing problems are not included in figure, but are in the text. Error terms on endogenous variables are omitted for parsimony.

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001