Parental Mediation and Adolescent Online Social Behavior

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Abstract

Parental mediation strategies are important for protecting children from exposure to risks and harm online. However, not much is known about the role individual adolescent, parent, and family-level factors play in influencing parents' engagement in parental mediation. These two studies were designed to explore the complex relationships between adolescent anxiety, depression, externalizing, and adolescent disclosure and secrecy, parent-child relationship quality, parent approval of adolescent online social behavior (OSB), parents' perception of other parents' approval of OSB, parental mediation, and adolescent OSB. Study one was designed to examine the relationships between individual adolescent factors and parental mediation strategies through proximal processes including parent-child relationship quality, adolescent disclosure, and secrecy. Study two was designed to examine how parents' perceptions of other parents' approval are associated with parents' own approval, their monitoring of online behavior, and their adolescents' subsequent OSB.

Results of these studies indicated that adolescent mental and behavioral health were associated with active and restrictive mediation, but only active mediation was associated with adolescent OSB. It appears that proximal processes between parents and adolescents are associated with technology-related parenting environments. Specifically, two parent-child relationship factors, adolescent disclosure, and secrecy were associated with restrictive mediation, and disclosure alone was associated with active mediation. Results of study two suggest that adolescent engagement in OSB differs based on parents' approval of OSB, as well as parents' level of engagement in active mediation, but not restrictive mediation. These two studies contribute to the field by providing a

preliminary understanding of the associations between individual, and family-level factors and parents' engagement in active and restrictive mediation.

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Introduction

Parental mediation of adolescent online behavior, such as rule setting, and communication with children about their internet use, are important strategies for protecting children from exposure to risks and harm online (Livingstone, 2007). While research suggests the importance of these active parenting strategies in socializing children to be responsible consumers of the internet (Sasson & Mesch, 2014), not much is known about the role individual child, parent, and family-level factors play in influencing parents' engagement in parental mediation strategies.

The following two studies were designed to explore the complex relationships between adolescent anxiety, depression, externalizing, and adolescent disclosure and secrecy, parent-child relationship quality, parent approval of adolescent online social behavior (OSB), parents' perception of other parents' approval of OSB, parental mediation, and adolescent OSB (see Figure 1 for a full conceptual model).

In study one, principles of the bioecological theory of human development (Bronfenbrenner, 2001) were applied to examine how individual adolescent factors were associated with parental mediation strategies through proximal processes including parent-child relationship quality, adolescent disclosure, and secrecy. Specifically, in study one (Figure 1, orange pathways) I examined 1) the associations between adolescent anxiety, depression, and externalizing and parent-child relationship quality, adolescent disclosure, and adolescent secrecy, and 2) the associations between adolescent disclosure, adolescent secrecy, and parent-child relationship quality and active and restrictive mediation of adolescent online behavior.

Results of study one contribute to the literature in a number of ways. First, it is one of the first to examine relationships between adolescent and parent-child relationship factors and both active and restrictive mediation of adolescent online behavior. Second, findings contribute to an understanding of how individual adolescent characteristics are associated with parenting environments through proximal processes. Specifically, findings provide insight into how adolescent anxiety, depression, and externalizing are associated with multiple parent-child relationship factors (relationship quality, disclosure, and secrecy). This provides a deeper understanding of how adolescent mental health may support or hinder family-level influences on parental engagement in parental mediation strategies. In study two I then shift the focus from individual adolescent factors to the role parents' perceptions of other parents play in parents' mediation of adolescent behavior and subsequent adolescent OSB.

Guided by social norms theory which posits that individual behavior is influenced by perceptions of what others believe and expect and how they behave (Berkowitz & Perkins, 1986), in study two, I examined the associations between parents' perceptions of other parents' approval of OSB, parents' own approval of OSB, active and restrictive mediation of adolescent online behavior, and adolescent engagement in OSB (see Figure 1, blue lines). Specifically, I examined 1) the mediating effect of parental approval of adolescent OSB on the relationship between parents' perceptions of other parents' approval of adolescent OSB and active or restrictive mediation of adolescent online behavior (see Figures 1 and 3) and 2) the mediating effects of active and restrictive mediation on the relationship between parental approval of adolescent OSB and adolescent engagement in OSB (see Figures 1 and 4). Results of study two contribute to

the parental mediation literature in four ways. First, findings enhance family and prevention scientists' understanding of the importance of parental approval and parents' perceptions of other parents' approval of adolescent OSB on technology-related parenting strategies. Second, findings aid in our understanding of how parents' own approval of OSB is associated with their perceptions of other parents' approval of OSB and how this relationship, in turn, shapes their parental mediation strategies. Results can be used to help researchers determine if prevention/intervention programs targeting parents' beliefs about other parents' approval of OSB is a promising strategy for increasing parental mediation and reducing adolescent OSB and the risk of harm associated with such behavior. Third, study two makes a unique theoretical contribution to the literature by moving beyond adolescence and applying social norms theory to parenting. Specifically, study two extended the application of social norms theory to social influences on parents' mediation of adolescent online behavior and their adolescents' subsequent engagement in OSB. Finally, both studies expanded upon previous research on parental mediation by examining individual, peer, and family-level factors associated with various parental mediation strategies.

The following section includes a review of the existing literature relating to parental mediation. Next, studies one and two will be described including study-specific literature review, method, results, and discussion sections. Finally, an integrated discussion and implications section will be presented.

Literature Review

Parental Mediation of Adolescent Online Behavior

Parents are one of the socializing agents of adolescents and have been found to play a role in influencing adolescent online behavior. Specifically, a number of studies on adolescent online behavior have examined how parents' guide their children's digital media use (Guo & Nathanson, 2011; Sasson & Mesch, 2014; Wisniewski, Jia, Xu, Rosson, & Carroll, 2015). One such way is parental mediation, defined as parental activities intended to guard children from exposure to risky activities and experiencing harm online (Clark, 2011; Livingstone, 2007). Parental mediation theory was first developed as a way to highlight the active role parents play in managing and regulating their children's television experiences (Nathanson, 1999; Valkenburg, Krcmar, Peeters, & Marseille, 1999) so as to mitigate the negative effects of television use; it has since been applied to children's digital and mobile media use including OSB (e.g., Notten, 2014; Notten & Nikken, 2016; Shin & Kang, 2016).

Acknowledging that adolescent online behavior takes place within the larger family context, parental mediation theory recognizes that parents use a number of strategies in an attempt to mediate and mitigate the potential negative effects of OSB, behaviors that could include, for example, harassment and the misuse of personal information. Parental mediation theory highlights three different mediation strategies: *active* mediation is defined as talking with young people about the content they saw on digital and mobile media, *restrictive* mediation includes rule setting and regulations about children's media use, and *co-using*, which happens when parents remain present while the child is engaged with media (Nathanson, 1999; Valkenburg et al., 1999). Prior research has shown that in relation to children's television use, active mediation can lead children to become more skeptical toward television content, become more educated

media users, and develop an internal guide; allowing them to make thoughtful decisions about media activities when parents are not around (Desmond, Singer, & Singer, 1990; Nathanson, 2001; Valkenburg et al., 1999).

Moving beyond television use, research has found that parental mediation, activities intended to guard children against exposure to risky activities and experiencing harm online (Clark, 2011; Livingstone, 2007) can be successful in mitigating negative impacts of online behavior (Lwin, Stanaland, & Miyazaki, 2008). For example, Chang and colleagues (2015) found that restrictive parental mediation helped to reduce internet addiction and cyberbullying in a sample of Taiwanese adolescents. Khurana, Bleakley, Jordan, and Romer (2015) found that among U.S. adolescents, restrictive parental mediation was associated with reduced rates of cyber victimization. In addition to restrictive mediation, active mediation has also been found to be effective in reducing negative media influences on children (Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013). It is posited that because active mediation is based on communication between parents and adolescents, children are more likely to develop critical thinking skills and skepticism about what they see when using media (Fujioka & Austin, 2003). For instance, Lwin and colleagues (2008) found that active mediation was negatively associated with adolescents' willingness to disclose personal information on commercial websites.

Study One

Much research has been done describing the types of parental mediation strategies used by parents (Livingstone & Helsper, 2008; Shin, Huh, & Faber, 2012; Shin & Kang, 2016). Other research has focused on adolescent mental and behavioral health and their

associations with parent-child relationship factors (Frijns, Keijsers, Branje, & Meeus, 2010). From a bioecological perspective, parents' engagement in mediation strategies is influenced by child characteristics and family-level processes. Adolescents have a role in shaping the type of parenting they receive through their own unique characteristics, including their mental and behavioral health characteristics. Utilizing the bioecological theory of human development, the current study was designed to examine the associations between adolescent anxiety, depression, externalizing, disclosure, secrecy, and parent-child relationship quality with parent engagement in active and restrictive mediation.

Bioecological Theory of Human Development

The bioecological theory of human development focuses on the role individuals play in their own development by way of proximal processes. Proximal processes are the interactions between an individual and the persons, objects, and symbols in his or her immediate environment (Bronfenbrenner, 2000, 2001). These proximal processes are the main focus of the bioecological theory of human development and make up the first element (P) in Bronfenbrenner's Process-Person-Context-Time (PPCT) model which was developed as a guideline for researchers to follow (Bronfenbrenner, 2000, 2001). The theory posits that all four elements of the PPCT model simultaneously influence an individual's development (Bronfenbrenner, 1999). Three types of person characteristics make up the second P of PPCT. The first type of person characteristics is force characteristics. They can initiate, sustain, impede, or interrupt proximal processes (Bronfenbrenner & Morris, 2006). Examples of such force characteristics include curiosity, impulsiveness, explosiveness, aggression, and violence (Bronfenbrenner &

Morris, 2006). Second, resource characteristics are those that influence one's ability to engage effectively in proximal processes (e.g., genetic defects, physical handicaps; Bronfenbrenner & Morris, 2006). Finally, demand characteristics invite or discourage reactions from the social environment, influencing the way in which proximal processes are established (e.g., agitated, or calm temperament, age, gender; Bronfenbrenner & Morris, 2006).

Context, the third element of the model (C), involves five interrelated systems, the microsystem (e.g., home, school), mesosystem (interrelations between microsystems), exosystem (e.g., a parent consistently working late), the macrosystem, (e.g., cultural values and belief systems) and the chronosystem (historical circumstances that affect context at all other levels). Of particular importance to the model is the microsystem, as this is where proximal processes occur (Bronfenbrenner & Morris, 2006). The final element of the PPCT model is time (T). Bronfenbrenner argued that an individual's life course is embedded in and shaped by conditions and events that occur during the historical time period during which the individual lives (Bronfenbrenner, 1995).

While the PPCT model is made up of four elements, it should be noted that not all four elements need to be included in every research study. It is necessary, however, that a study grounded in PPCT, focus on, and include at a minimum, process and one other element of the model. While all four elements of the PPCT model were included in study one, greater emphasis was placed on the process and person elements.

The bioecological theory of human development suggests that children experience different parenting environments (processes) due to their own distinct characteristics (person). The focus of this study is on person (adolescent anxiety, depression, and

externalizing) and process (parent-child relationship quality, adolescent disclosure, and secrecy) level influences on parental mediation of adolescent online behavior including a consideration of the associations between these person and process-level factors.

Parent-Child Relationship Quality

It has been posited that while parenting behaviors can be used to socialize and guide adolescents' behavior, the quality of the parent-child relationship provides the context for such guidance to occur (Morris, Silk, Steinberg, Myers, & Robinson, 2007). While there is much literature on parental mediation, there is limited understanding of the association between parent-child relationship quality and parental mediation strategies. Building on the general parenting literature suggesting that parental warmth and connection influence parenting practices (Darling & Stenberg, 1993) it is reasonable that parents would engage in more mediation when parents and adolescents feel connected with one another. In fact, the limited research that does exist suggests that parental warmth and connection are associated with increased parental mediation (Eastin, Greenberg, & Hofschire, 2006; Padilla-Walker & Coyne, 2011; Rosen, Cheever, & Carrier, 2008).

Previous research examining parent and child predictors of proactive media monitoring (i.e., parental mediation strategies during adolescence found that parental connection and regulation was associated with increased active and restrictive mediation one year later (Padilla-Walker & Coyne, 2011). Further, research has found associations between parenting style and parental mediation (Eastin et al., 2006, Rosen et al., 2008). For example, a study examining the relationships between parenting styles, limit setting, and monitoring of online behaviors found that teens with authoritative parents had limits and were monitored more than teens with authoritarian (high demand, low

responsiveness, low warmth) and indulgent parents (low demand, high responsiveness, high warmth); neglectful parents (low demand, low responsiveness, low warmth) set few limits and monitored their teens the least. Based on results of these studies, it is reasonable that parent-child relationship quality would be associated with parental mediation of adolescent online behavior. While parent-child relationship quality is likely an important factor of parental mediation, adolescent disclosure and secrecy may also be associated with parental mediation strategies.

Adolescent Disclosure and Secrecy

Adolescent disclosure and secrecy are two aspects of the parent-child relationship that impact parents' knowledge about their adolescents' whereabouts and activities (Finkenauer, Frijns, Engels, & Kerkhof, 2005; Stattin & Kerr, 2000). Parental knowledge is important to prevention as it has been shown to be negatively associated with delinquent behavior and internalizing problems among adolescents (Bendezú, Pinderhughes, Hurley, McMahon, & Racz, 2016; Kerr & Stattin, 2000; Laible, Carlo, Padilla-Walker, Laird, & Zeringue, 2019); it is crucial for researchers to understand the unique ways parents gain knowledge. While research has looked at adolescent disclosure and secrecy in relation to parenting and adolescent offline behavior, there is a lack of understanding of the role these constructs play in influencing parental mediation of adolescent online behavior. However, as there have been associations found between disclosure, secrecy, and more general parenting behaviors including parental solicitation (Villalobos Solis, Smetana, & Comer, 2015) it is reasonable that similar associations may exist between parental mediation and adolescent disclosure and secrecy.

Adolescent Disclosure

Past research has shown that adolescents actively manage how much information their parents know about their day-to-day activities by both disclosing information and keeping secrets (Smetana, Villalobos, Rogge, & Tasopoulos-Chan, 2010; Villalobos Solis et al., 2015; Yau, Tasopoulos-Chan, & Smetana, 2009). Adolescent disclosure is described as the process of an adolescent voluntarily providing information to parents about their activities (Kerr & Stattin, 2000). One specific type of adolescent disclosure, routine disclosure, occurs when adolescents reveal what they do when their parents are not around (Tilton-Weaver, Marshall, & Darling, 2014). This includes adolescents voluntarily telling parents about their daily activities such as where they go, who they are with, and what they do when they are outside of the home (Tilton-Weaver et al., 2014). Adolescent disclosure has been shown to decrease as adolescents get older (Keijsers, Frijns, Branje, & Meeus, 2009).

Adolescent Secrecy

Though research has linked adolescent disclosure with aspects of parenting (e.g., parental knowledge), it has been argued that previous measurements of disclosure not only capture what adolescents voluntarily disclose to their parents but also what they hide from them (Frijns et al., 2010). This may include hiding what they do during their free time (Keijsers, Branje, VanderValk, & Meeus, 2010) and who they are spending that free time with. While disclosure is focused on what information adolescents voluntarily provide to their parents, secrecy is defined as what adolescents actively conceal from their parents (Frijns et al., 2010). Secrecy has been linked to lower parent-child relationship quality (Frijns, Finkenauer, Vermulst, & Engels, 2005) and maladjustment;

research has revealed associations between secrecy, depressive symptoms, and loneliness (Finkenauer, Engels, & Meeus, 2002; Frijns et al., 2005).

Distinguishing Secrecy from Disclosure

It is important to recognize that while conceptually similar, disclosure and secrecy are not simply opposite ends of the same spectrum (Tilton-Weaver, 2014); behaviorally they are quite different. While disclosure and secrecy are related constructs that often occur simultaneously during parent-child communication, their unique qualities set them apart as two distinct constructs (Frijns et al., 2010). For example, one could tell a parent about a new friend at school, while simultaneously concealing that the friend often engages in sexting behavior. This argument has been supported with previous research showing that adolescent disclosure and secrecy were only moderately negatively associated (Frijns et al., 2010; Smetana, Metzger, Gettman, & Campione-Barr, 2006). Adolescents may choose to disclose or keep information from their parents for a number of reasons including to gain autonomy, avoid disapproval, or because they view some parts of their lives as private that should be kept secret from parents (Finkenauer et al., 2002; Kerr, Stattin, & Trost, 1999; Marshall, Tilton-Weaver, & Bosdet, 2005).

Parenting behaviors have been shown to be negatively associated with secrecy overall (Keijsers et al., 2010), but not necessarily when considering specific issues. While research has linked aspects of parenting with disclosure and secrecy, specific child characteristics may also be associated with adolescents' engagement in disclosure and secrecy. Possible characteristics include adolescent anxiety, depression, and externalizing.

Adolescent Anxiety, Depression, and Externalizing Behavior

Anxiety disorders are common and involve excessive fear or anxiety that interferes with daily living. As many as 32% of adolescents experience an anxiety disorder; for a person with an anxiety disorder, the worry and fear they feel is constant, can get worse over time, and can impact daily activities including schoolwork, and relationships (Merikangas et al., 2010; National Institute of Mental Health [NIMH], 2018). Another internalizing behavior, depression, is a mood disorder that causes a persistent feeling of sadness and loss of interest. Depressive symptoms are the most common psychological disturbances during adolescence (Steinberg, 2008). While anxiety and depression present themselves more internally, they have been found to be closely related to externalizing behavior, a super-construct comprised of delinquent and aggressive behavior syndromes (Achenbach, 1991). Estimated rates of adolescent externalizing disorder range from 7-10% (Burt, Krueger, Mcgue, & Iacono, 2001; Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005) with higher prevalence among males compared to females (Kessler et al., 2005; King, Iacono, & Mcgue, 2004). The associations between anxiety, depression, externalizing, and parenting, have been examined and theorized in a number of ways. For instance, research has looked at the role of anxiety, depression, and externalizing in adolescent disclosure and secrecy.

The impact of disclosure and secrecy on adolescent internalizing and externalizing has been examined in multiple studies (Keijsers et al., 2010; Stattin & Kerr, 2000). For instance, adolescent disclosure has been shown to be predictive of decreased delinquency (Keijsers et al., 2010; Keijsers et al., 2009) and negatively associated with internalizing behaviors (Frijns et al., 2010; Frojd, Kaltiala-Heino, & Rimpela, 2007; Kerr & Stattin 2000). In contrast to disclosure, secrecy regarding routine activities has been shown to be

positively associated with both internalizing and externalizing behaviors (Finkenauer, et al., 2002; Frijns et al., 2005; Frijns, et al., 2010).

While the pathways from disclosure and secrecy to internalizing and externalizing behavior are evident, there has also been research to suggest that these behaviors bidirectionally influence each other. It has been suggested that parents might change their parenting behavior in reaction to adolescent problematic behaviors as a way to avoid conflict or unpleasant interactions with their child (Kerr & Stattin, 2003). Examinations of the relationships between child externalizing, parental knowledge, and parent-child attachment have shown that not only was child externalizing associated with less parental knowledge (Fite, Colder, Lochman, & Wells, 2006), but child externalizing was bi-directionally associated with mutual parent-child attachment over time (Brook, Lee, Finch, & Brown, 2012). Further, an investigation of the bidirectional relationships between adolescent depressive symptoms, parental knowledge, adolescent disclosure, and parental monitoring (i.e., solicitation and control), showed bidirectional associations between adolescent depressive symptoms, and adolescent disclosure over time.

Parental mediation is a unique and specific aspect of parental monitoring that emphasizes ways parents can actively mediate and monitor their adolescents' online behavior in particular. It is reasonable, however, to think that some of the relationships between adolescent mental health, the parent-child relationship, and parental mediation would be similar to those found in relation to parental monitoring of offline behaviors.

Examining the associations of adolescent mental health with parent-child relationship quality and adolescent disclosure and secrecy will provide further understanding of how person characteristics (anxiety, depression, and/or externalizing) are associated with the

quality of the parent-child relationship and adolescent disclosure and secrecy. While both parent and adolescent report of parent-child relationship quality were collected during data collection, only parent report of this construct was used for study one as it aligned with the bioecological theory of human development. The relationship between parents' perceptions of the quality of the relationship with their adolescent and adolescent disclosure (parent report) and secrecy (adolescent report) using technology may be weaker when the adolescent is experiencing anxiety, depression, and externalizing.

Significance of Study One

Some research has examined factors that may influence parental mediation strategies, however, much of it has focused on sociodemographic factors, with less attention paid to the associations between adolescent disclosure and secrecy, parent-child relationship quality, adolescent anxiety, depression, and externalizing. While there is evidence that adolescent anxiety, depression, and externalizing influence parenting, it is unclear how these factors are associated with the parent-child relationship (relationship quality, adolescent disclosure, and secrecy) and how the parent-child relationship is associated with parental mediation strategies. Understanding the associations between adolescent anxiety, depression, and externalizing with parent-child relationship quality, adolescent disclosure, and secrecy will tell researchers how adolescent mental health is associated with proximal processes between parents and adolescent children and how these processes are associated with active and restrictive mediation.

Findings will provide insight into how individual and family-level factors are associated with various climates of media use for families (e.g., one that includes engagement in active versus restrictive parental mediation strategies). This information

could support prevention scientists in developing strategies for parents to successfully be involved in their adolescent's online lives so as to support responsible adolescent online behavior.

Research Questions

RQ 1: Is there a relationship between adolescent anxiety, depression, or externalizing and parent report of adolescent disclosure? See Figure 2.

RQ 2: Is there a relationship between adolescent anxiety, depression, or externalizing and adolescent secrecy? See Figure 2.

RQ 3: Is there a relationship between adolescent anxiety, depression, or externalizing and parent-child relationship quality? See Figure 2.

RQ 4: Is there a relationship between parent report of adolescent disclosure and restrictive mediation of adolescent online behavior or active mediation of adolescent online behavior? See Figure 2.

RQ 5: Is there a relationship between adolescent secrecy and restrictive mediation of adolescent online behavior or active mediation of adolescent online behavior? See Figure 2.

RQ 6: Is there a relationship between parent-child relationship quality and restrictive mediation of adolescent online behavior or active mediation of adolescent online behavior? See Figure 2.

Method

Data were collected during October and November 2019 as part of a larger study. Parents and adolescents ages 13-18 were recruited using Qualtrics recruitment services. Specifically, Qualtrics aggregated over 20 market research panels, and randomly selected

potential respondents to receive an invitation to participate in this study. Potential parent participants received an emailed invitation informing them that the survey is for research purposes only, the expected length of the survey, and what incentives were available (e.g., cash, airline miles, gift cards). Survey contents were not revealed until the consent process to reduce self-selection bias.

Parents who met inclusion criteria (i.e., were a parent of a 13 to 18-year-old) and agreed to participate were required to provide consent before completing the survey. Parent participants were informed that their participation was voluntary and that they were free to stop the survey at any time. They then completed a 20-minute online survey in Qualtrics. Parents responded to questions regarding their youngest child aged 13-18. Parents were then invited to provide consent for the adolescent (aged 13-18) they reported on to complete a child survey; if they consented, they provided an email address for their child. Upon completion of the survey, an email with a link to a child survey was automatically sent to the adolescent's email address. Qualtrics provides incentives to participants based on the length of the survey, their specific panelist profile, and difficulty of achieving the target sample. For this study, parents were compensated up to $3.00 or in the manner they are typically compensated. Adolescents were compensated by the research team with a $10 Amazon gift card.

A number of steps were taken to minimize sampling bias. Qualtrics ensures that survey participants are not oversampled by maintaining records of participation history and limiting the number of survey invitations each person receives. Once data were collected from 50 parents, 150 parents, and then every 50 parents afterward, the data were reviewed with a Qualtrics project manager to check for quality assurance. This

included assessing participants with survey completion times less than one-half the median rate and looking for patterns that would indicate inattention.

In order to meet target demographic goals and recruit a diverse sample that approximated the U.S. population, Qualtrics set "quotas" to ensure that responses matched the target demographics. Quotas track the number of complete survey responses that fit specific criteria. For the larger study, the following quotas were set: 1) No more than 60% mothers; mothers are overrepresented in research on parenting and adolescent online behavior, therefore, setting this quota ensured adequate participation by fathers, 2) no more than 75% white participants; according to Census data, the total white population, including white Hispanics and Latinos, is 76.9%, and 3) no less than 33% rural and no less than 33% urban participants; Census data revealed that 19.3% of the population lives in rural areas and 80.7% live in urban areas. Once participants answered a question indicating they fit in a category that we had already met quota for, they were automatically terminated. For example, if 60% of data collected was already from mothers and another parent indicated that they were a mother, they would be terminated as the quota for mothers had been met.

Adolescent Measures

Demographics

Adolescents self-reported demographic information (e.g., age, gender, race). See Table 1.

Anxiety

Adolescents reported "how often they experience" three items on a 4-point Likert scale from 1 (*not at all*) to 4 (*a lot*), from the Spence Child Anxiety Scale (SCAS;

Spence, 1998), for example, “I worry about things.” For research question two b and three b, adolescent a sum score was computed (M = 2.18, SD = 0.88, range = 1-4, α = .84; see Table 2).

Depression

Adolescents were asked to rate three items (Faulstich, Moore, Carey, Ruggiero, & Gresham, 1986) on “how much they have felt this way during the past week” on a 4-point Likert scale from 1 (*not a lot*) to 4 (*a lot*), for example, “I felt down and unhappy.” For research questions two b and three b, a sum score was computed (M = 1.82, SD = 0.88, range = 1-4, α = .88; see Table 2).

Externalizing

Adolescents were asked to report how true nine items were of them in the past six months (adapted from the Child Behavior Checklist; Achenbach, 1991), on a 3-point Likert scale from 1 (*not true*) to 3 (*often true*), for example, “I lie or cheat.” For research questions two b and three b, a mean score was computed (M = 1.23, SD = 0.37, range = 1-3, α = .90; see Table 2).

Secrecy

Adolescents reported how often they engaged in two activities “using technology” and “in-person” on a five-point Likert scale from 1 (*never*) to 5 (*always*), from the Child Disclosure Scale (Kerr, Stattin, & Burk, 2010). Questions included, “Do you keep a lot of secrets about what you do during your free time when you talk to your parent [using technology/in-person]?” and “Do you hide a lot about what you do during nights and weekends when you talk to your parent [using technology/in-person]?” For each question, a mean of the technology responses and a mean of the in-person responses were

computed. Next, means were summed to create an overall secrecy score (M = 5.42, SD = 2.50, range = 2-10; see Table 2).

Parent Measures

Demographics

Parents self-reported demographic information (e.g., age, gender, race, household income, marital status, employment status, education level). See Table 1.

Child Disclosure Using Technology

Parents were asked to report how often their adolescent child engaged in two activities "using technology" and "in-person" on a five-point Likert scale from 1 (*never*) to 5 (*always*), modified from the Child Disclosure Scale (Kerr et al., 2010). Items were "How often does your child tell you where he/she is going to be after school or after work [using technology/in-person]?" and "How often does your child tell you where he/she is really going when they go out evenings and weekends [using technology/in-person]?" For each question, a mean of the technology responses and a mean of the in-person responses were computed. Next, means were summed to create an overall disclosure score (M = 8.24, SD = 1.25, range = 4.5-10; see Table 2).

Parent-Child Relationship Quality

Parents reported on seven items assessing parent-child relationship quality using a 5-point Likert scale from 1 (*never*) to 5 (*always*), for example, "I trust my child." For research questions one, two a, two b, three a, three b, and four, a mean score was computed (M = 4.60, SD = 0.42, range = 2.57-5, α = .82; see Table 2).

Active and Restrictive Mediation of Adolescent Online Behavior

Frequency of active and restrictive mediation were assessed using nine items from a longer list of previously established measures of parenting strategies specific to online behavior (Liau, Khoo, & Ang, 2008; Livingstone & Helsper, 2008; Sanders, Parent, Forehand, Sullivan, & Jones, 2016). Parents reported how often they use the following active mediation strategies (five questions) … for example: "talk to the child about what he/she is doing on the internet?" Parents reported how often they use the following restrictive mediation strategies (four questions) … for example: "demand to know which websites your child has visited?" Response options range from 1 (*not at all*) to 3 (*frequently*). For research questions one and four means scores were used (active mediation, $M = 2.20$, $SD = 0.52$, range = 1-3; restrictive mediation, $M = 2.01$, $SD = 0.66$, range = 1-3 see Table 2). Alpha reliabilities for active and restrictive mediation were .83 and .89, respectively.

Data Analysis Plan

Preliminary Analyses

Prior to testing research questions, preliminary data analyses were conducted in SPSS. Specifically, data were checked for missing data, descriptive statistics were computed, correlations were computed to examine the relationships among study variables and checking the normality of study variables including skewness and kurtosis statistics (see Table 1 and Table 2 for descriptive statistics and correlations).

Missing Data

Overall, there was very little missing data. Specifically, missing data for parent demographic information ranged from 0.0% to 5.5% (22 missing cases); missing data for adolescent demographic information ranged from 0.0% to 1.0% (4 missing cases). There

was no missing data for parent reported measures (adolescent disclosure using technology, parent-child relationship quality). Similarly, there was no missing data for adolescent reported measures (anxiety, depression, externalizing, secrecy using technology). To deal with the 22 missing cases on parent age, a dichotomous variable was created to compare participants who were missing versus non-missing on parent age. A series of t-tests were computed to check for significant differences in key variables by missingness; no significant differences were found for any of the key study variables. Results of the t-tests suggested that the data were missing completely at random. To handle missing data, all missing data were recoded as -999. Full information maximum likelihood (FIML) a highly recommended approach (Enders, 2010) was then used to estimate the final model using Mplus software (version 8.3).

Skewness

Preliminary analyses revealed that parent-child relationship quality was highly positively skewed; a log transformation was computed to reduce skewness.

Control Variables

Control variables were determined prior to testing research questions. A series of correlations, t-tests, and ANOVAs were run to assess whether differences in key study variables exist based on parent/adolescent demographics (e.g., age, gender, race, marital status, household income, parent's education level). Only those variables that were significant were retained as controls. Significant gender (parent and adolescent) differences in disclosure and secrecy were evident, therefore parent and adolescent gender were controlled for in the full model (see Tables 3 and 4).

Primary Analyses

To test all six research questions, a path analysis was conducted using Mplus software (version 8.3; see Figure 2). Path analysis allowed me to specify a model based on theory and investigate the associations between a set of demographic controls (parent/adolescent age and parent/adolescent gender),predictor variables (i.e., parent-child relationship quality, anxiety, depression, and externalizing), and multiple observed dependent variables (i.e., disclosure and secrecy using technology, active and restrictive mediation) simultaneously. Another benefit of using path analysis was that variables in the model could be both independent and dependent, whereas, in regression, variables are either independent or dependent. Path analysis also recognizes and requires the specification of error among measures while regression assumes that measurement is free of error.

In order to assess model fit, a number of model fit indices were assessed including chi-square, Comparative Fit Index (CFI), and Root Mean Squared Error of Approximation (RMSEA). Common guidelines are that a nonsignificant chi-square value, CFI values more than .90, and RMSEA values .06 or less indicate good model fit (Hu & Bentler, 1999). While there is much variation in the recommended sample size needed to run path analysis, a general rule of thumb is 10 participants for every free parameter estimated; I estimated 18 free parameters in the path analysis thus I needed a minimum of 180 participants. As the current study included data from a sample of 402 parent-adolescent dyads, the sample size was large enough to compute the proposed path analysis.

Results

Descriptive statistics and correlations are reported in Table 2. To answer all six research questions, a path analysis was constructed. Model fit statistics suggested good model fit (χ^2= 7.64, *df* = 9, *p* =.57, CFI = 1.00, RMSEA = .00; Figure 2).

Research Questions One, Two, and Three

Results indicated that parent age was negatively associated with parent report of adolescent disclosure (β = -.031 *p* =.03) such that being older was associated with parents reporting less adolescent disclosure (see Table 5). Child gender was positively associated with parent report of adolescent disclosure (β = .36, *p* < .01) such that being female was associated with parents reporting more adolescent disclosure. Parent gender and adolescent age were not associated with parent report of adolescent disclosure in the full model (see Table 5). Adolescent anxiety (β = -.004, *p* = .89), adolescent depression (β = .005, *p* =.87), and adolescent externalizing (β = .059, *p* =.75) were not associated with parent report of adolescent disclosure (RQ 1, see Figure 3 and Table 5).

Parent age (β = -.06, *p* < .05) and parent gender (β = -.06, *p* < .05) were negatively associated with adolescent secrecy such that being older and being female were associated with less adolescent secrecy. Adolescent age and adolescent gender were not associated with adolescent secrecy in the full model. Adolescent depression (β = .28, *p* < .001) and adolescent externalizing (β = 1.34, *p* < .001) were both positively associated with adolescent secrecy after controlling for demographics (RQ 2, see Figure 3 and Table 5).

Parent age, parent gender, adolescent age, and adolescent gender were not associated with parent-child relationship quality in the full model. Additionally,

adolescent anxiety, adolescent depression, and adolescent externalizing were not associated with parent-child relationship quality (RQ 3, see Figure 3 and Table 5).

Research Questions Four, Five, and Six

None of the demographic controls (parent/adolescent age and gender) were associated with active mediation; parent age was negatively associated with restrictive mediation (β = -.02, p <.01). Adolescent disclosure was positively associated with active mediation (β = .14, p = .010) and positively associated with restrictive mediation (β = .09, p < .01) after controlling for demographics (RQ 4, see Figure 3 and Table 5). Results indicated that adolescent secrecy (β = .036, p < .01) was positively associated with restrictive mediation after controlling for demographics (RQ 5, see Figure 3 and Table 5). However, adolescent secrecy was not associated with active mediation (RQ 5, see Figure 3 and Table 5). Finally, parent-child relationship quality was not associated with either restrictive mediation or active mediation after controlling for demographics (RQ 6, see Figure 3 and Table 5).

Discussion

Results of this study partially support previous research suggesting that parent-child relationship quality, disclosure, and secrecy are associated with both internalizing and externalizing behavior (Brook et al., 2012; Hamza & Willoughby, 2011). While previous research suggests direct relationships between anxiety, depression, externalizing, parent-child relationship quality, disclosure, and secrecy this was not the case for all pathways in this study.

Disclosure and Secrecy

According to the bioecological theory of human development, children experience varying parenting environments as a result of their own unique characteristics. The results of this study suggest secrecy is one proximal process that may be associated with child characteristics Specifically, depression and externalizing were positively associated with adolescent secrecy; however, anxiety was not. It seems that various aspects of adolescent mental and behavioral health (depression and delinquency) are more associated to secrecy than others (anxiety). This is in line with previous research (Finkenauer et al., 2002; Kerr et al., 1999; Marshall et al., 2005). Results of this study suggest the need to explore causal relationships as secrecy may be impacted by child characteristics, however, the reverse could also be true.

There are a number of possible alternative explanations for the lack of association between adolescent anxiety, and secrecy. First, anxiety is characterized by extreme fear, somatic complaints, and other internalized symptoms, while delinquent and aggressive behavior are indicative of externalizing (Achenbach, 1991). The difference in the presentation of anxiety versus externalizing may provide some insight into why there was no association between anxiety and secrecy. Adolescents who are engaging in externalizing behavior may have more problems to keep from their parents than adolescents who are not engaging in externalizing behavior, and thus, have more reasons to refrain from disclosure (Darling, Cumsille, Caldwell, & Dowdy, 2006; Kerr et al., 1999). Further, the current sample did not present extremely high rates of anxiety; it may be that unless adolescents are experiencing high levels of anxiety, the association between anxiety and secrecy is not evident. It may also be that adolescents experiencing anxiety simply do not keep many secrets from their parents, but they also do not disclose

a lot either. They make look for supports outside of their parents to disclose information to, such as peers.

Another possible explanation for the lack of association between anxiety and secrecy is that anxiety is generally ongoing; it may be that anxiety is not associated with more day-to-day disclosure and secrecy but that it would be associated with longer-term changes in these constructs. Future longitudinal research assessing anxiety and secrecy across adolescent development (e.g., 5 years, from 13-18 years) would allow for the examination of such changes.

While previous research provides evidence for the link between adolescent disclosure, mental health, and externalizing (Fite et al., 2006; Hamza & Willoughby, 2011) it is less clear what factors impact parents' perceptions of their adolescents' disclosure. The lack of association between anxiety, depression, externalizing, and disclosure suggests that it may not be about adolescent mental and behavioral health. There could be several other factors that influence parents' perceptions of adolescent disclosure. One potential factor is parents' perceptions of the parent-child relationship quality. Similar to research supporting the idea that adolescents are more likely to disclose information when they feel they have a trusting, warm relationship with their parent(s) (Keijsers, et al., 2016) it may be that when parents perceive the quality of the relationship with their adolescent to be high, they also perceive that their adolescent discloses a lot of information to them and vice versa.

It is also worth noting the association between parent gender and adolescent secrecy. Results of the path analysis indicated that for parents, being a father was associated with more adolescent secrecy. While not much research has looked at parent

demographic differences in adolescent secrecy, previous research has shown that disclosure varies for mothers and fathers (Waizenhofer, Buchanan, & Jackson-Newsom, 2004);girls report greater disclosure to mothers than to fathers. Adolescent secrecy may differ by parent-adolescent dyads. Specifically, there may be differences in adolescent secrecy between father-daughter and father-son dyads such that daughters keep more secrets from their fathers than sons.

Parents' past and future perspectives about disclosure are also likely important. Parents' perceptions of their adolescents' past disclosure habits may also be important in predicting parents' future expectations about their adolescents' disclosure. Past research has examined gender differences in adolescent expectations for how talking about problems would make them feel and adolescent actual disclosure (Rose et al., 2012); adolescents' expectations accounted for female's greater disclosure. While research has looked at the link between adolescent expectations and disclosure, the associations between parents' perceptions of past adolescent disclosure and expectations about future adolescent disclosure have yet to be explored. Longitudinal data would allow us to examine the role that parents' perceptions of past disclosure (e.g., in the past year) play on expectations of future disclosure.

Overall, the results for secrecy and disclosure highlight the argument that secrecy and disclosure are in fact two unique constructs and not opposite ends of one continuum (Frijns et al., 2010). Going forth it is important to remember that while related, measurement of these constructs should be separate.

Parent-Child Relationship Quality

While preliminary analyses revealed significant bivariate correlations between anxiety, depression, externalizing, and relationship quality, no significant associations were found between anxiety, depression, externalizing, and parent-child relationship quality in the final path model. One explanation for this is that the current study did not consider the potential for reciprocal and longitudinal associations between adolescent mental health, behavioral health, and relationship quality. Fanti, Henrich, Brookmeyer, and Kuperminc (2008) examined the longitudinal reciprocal associations between externalizing problems, internalizing problems, mother-adolescent relationship quality, and father-adolescent relationship quality. Findings revealed a longitudinal, reciprocal association between the quality of adolescents' relationships with their mothers and internalizing problems. Results also indicated longitudinal unidirectional effects from externalizing problems to the quality of adolescents' relationships with their fathers and from the quality of adolescents' relationships with their mothers to externalizing problems (Fanti et al., 2008).

Active and Restrictive Mediation

The findings of this study suggest that proximal processes between adolescents and parents (disclosure and secrecy) may be associated with parental mediation behaviors. Parental mediation is an important way for parents to mitigate the risks associated with adolescent media use and many parents report using both active and restrictive mediation strategies (Durak & Kaygin, 2020). Prior research has shown that when parents engage in active mediation, adolescents are less likely to engage in risky online behaviors (Livingstone & Helsper, 2008). Based on the study results, it appears that the type of mediation matters regarding adolescent secrecy. When adolescents report

keeping more secrets from their parents, this is associated with parents engaging in more restrictive mediation.

The findings of the current study build on parental mediation theory, examining factors associated with active and restrictive mediation, by focusing on parent-child communication and interaction (Clark, 2011). The study results align with the limited research suggesting associations between adolescent disclosure, restrictive and active mediation (Shin & Kang, 2016). The associations between disclosure, active and restrictive mediation make conceptual sense; when adolescents share information about their daily lives with parents, parents make decisions about setting boundaries around online behavior and are better able to engage in open communication with children about their online behavior. In contrast, secrecy was associated with restrictive mediation; adolescents may keep more information from their parents for fear that their parents will disapprove of or not allow such behavior and when parents think their adolescent is keeping things from them, they are more likely to use controlling parenting strategies.

Limitations and Future Directions

While the findings of this study contribute valuable information to the body of research on parental mediation, it was not without limitations. First, due to the cross-sectional nature of the study, we cannot see how associations between disclosure, secrecy, active and restrictive mediation change over time nor can we make causal claims about these relationships. It is important to recognize that not only can parental mediation be a response to adolescent behavior, but adolescent behavior can be a response to parental mediation. Parents may utilize preventative strategies that protect adolescents from online risk exposure in the first place, while also engaging in more reactive

strategies in response to their adolescent's disclosure, secrecy, and online behaviors. For example, parental mediation literature suggests that restrictive mediation could cause boomerang effects such that when parents engage in restrictive mediation, adolescents engage in more risks online (Shin & Ismail, 2014), particularly when the restriction is imposed on adolescents who have a high need for autonomy (Shin & Kang, 2016). It is likely that the balance between preventative and reactive parental mediation shifts more toward reactive mediation as adolescents get closer to emerging adulthood. Further understanding of how adolescent secrecy is associated with different types of mediation can contribute to the development of family-level strategies focused on improving parent-child communication and interactions, and in particular encouraging more disclosure and less secrecy.

It is also important to recognize that in the current study parent report of adolescent disclosure was used. It may be that adolescent anxiety, depression, or externalizing is associated with adolescents' own report of disclosure in a way that was not captured by parent report; adolescents have been shown to be the best reporters of their own behavior (Moretti, Fine, Haley, & Marriage, 1985). Future research might use parent and youth-report of disclosure as this will allow for a clearer picture of the associations between child characteristics, adolescent disclosure and parents' perception of disclosure. Furthermore, in the current study measures captured general disclosure and secrecy rather than intimate disclosure or secrecy and disclosure specifically about OSB. The type of information adolescents disclose may matter in relation to internalizing and externalizing behaviors. Future research should explore the associations between adolescent anxiety, depression, externalizing, intimate self-disclosure, and secrecy. It would also be useful to

test the current study model using a measure of adolescent disclosure and secrecy related to their online behavior (e.g., "Do you hide a lot about what you do on the internet when you talk to your parent?"). This would provide more insight into how much adolescents are sharing or keeping from their parents with regards to their online behaviors and how that relates to parents' engagement in active and restrictive mediation strategies.

Additionally, while demographics were controlled in the model, that may not capture the ways in which pathways may differ by parent/adolescent age or gender. Specifically, adolescent age may moderate the relationships between anxiety, depression, or externalizing and adolescent disclosure and/or relationship quality. Adolescence is characterized by a need for autonomy and independence; adolescents may assert their autonomy by establishing boundaries with parents around their personal information (Finkenauer et al., 2002; Petronio, 2002; Youniss & Smollar, 1985). Consistent with the developmental shift in the need for autonomy from early adolescence to later adolescence (De Goede, Branje, & Meeus, 2009; Furman & Buhrmester, 1992; Moore, 1987), younger adolescents may disclose less and keep more secrets compared to older adolescents despite experiencing similar levels of anxiety, depression, or externalizing. Additionally, early adolescents high on anxiety, depression, or externalizing may disclose less and keep more secrets compared to early adolescents low on anxiety, depression, or externalizing.

Finally, the lack of association between parent-child relationship quality and both restrictive and active mediation of adolescent online behavior is intriguing. It may be that the online social behavior itself is what drives the mediation, regardless of the quality of the parent-child relationship. Research shows that a large percentage (81%) of parents are

concerned about their adolescents' online privacy (Madden, Cortesi, Gasser, Lenhart, & Duggan, 2013). Even though parents may trust their adolescent and report high relationship quality, they are still concerned for their adolescent's safety and well-being online and are taking steps to keep their adolescent out of trouble online.

Study Two

Study two was designed to build upon study one by exploring the associations between parents' perceptions of other parents' approval of OSB and parents' own approval of OSB with active and restrictive parental mediation of adolescent online behavior and adolescent engagement in OSB.

Adolescent Online Social Behavior

According to a recent Pew Research Center survey, a vast majority of U.S. 13-17-year-olds report having access to a smartphone (95%), and a large proportion (45%) say they are online almost constantly (Anderson & Jiang, 2018). Adolescents are drawn to the internet as it provides opportunities to communicate and form relationships with other people (Biocca, 2000; Bryant, Sanders-Jackson, & Smallwood, 2006; Mikami, Szwedo, Allen, Evans, & Hare, 2010; Valkenburg & Peter, 2009). They spend a significant amount of time online engaging in communication and social networking activities (Anderson & Jiang, 2018; Rideout, Foehr, & Roberts, 2010; Shin et al., 2012).

As adolescents become more autonomous, they shift their focus from parents and family to peers and friendships; many of these relationships are formed and/or maintained online (Bryant et al., 2006). Specifically, adolescents have been found to make friends online through online social networking sites, online games, and blogging sites (Lenhart, Smith, Anderson, Duggan, & Perrin, 2015). For some youth, OSB may result in the

formation of some of their first relationships outside of their family and the community in which they live (Patchin & Hinduja, 2010; Quigley & Blashke, 2003). While these interactions can be beneficial for individuation and identity development, some OSB may be more appropriate than others at different stages of adolescent development (e.g., forming intimate relationships with strangers online may be appropriate for an 18-year-old but not a 13-year-old).

Teens have described social media as a key tool for connecting and maintaining social relationships, being creative, and learning information about the world (Anderson & Jiang, 2018). However, as adolescents spend more time using social media, they experience increased exposure to risk, and specifically, increased opportunity for social interactions with online strangers (Cernikova, Dedkova, & Smahel, 2018). While a majority of these interactions are harmless (Holmes, 2009), meeting strangers online is risky in that it is associated with a certain likelihood and magnitude of harm (Livingstone, 2013), including the misuse of personal information and victimization (Notten & Nikken, 2016). The increase in digital media use as children get older along with the potentially negative consequences of OSB puts parents in a conflicting position as they attempt to regulate their children's online behavior, while also fostering autonomy. Rather than keeping children from using the internet, research suggests that parents engage in active parenting strategies as this allows children to experience benefits of the internet (e.g., access to information, other worldviews, connecting with family across geographical distance) while also decreasing the likelihood of harm (Livingstone & Helsper, 2008; Notten, 2014).

Parental Mediation of Online Behavior

While research highlights the importance of parental mediation in influencing adolescent online behavior, there is limited understanding about what influences parental mediation. Specifically, there is a lack of research examining parents' own approval of adolescent OSB and the association this approval or disapproval has with parent's engagement in active and restrictive mediation. Furthermore, it is important to recognize that parenting does not exist in a vacuum, and many factors can influence parent's own approval of adolescent OSB, and their engagement in various technology-related parenting strategies.

Parental Approval of Online Social Behavior

One factor that is likely to be associated with parents' engagement in parental mediation strategies is parental attitudes, how parents think about and value media (Lauricella, Wartella, & Rideout, 2015). While parental attitudes have been shown to be associated with children's media use (Lauricella, et al., 2015), this research is not without limitations. The existing research has mainly focused on young children and media screen time as the outcome variable (Lauricella et al., 2015; Sanders et al., 2016; Vaala & Hornik, 2014). For example, Vaala and Hornik (2014) used a narrow age range of young children (3-27 months) and focused on television. Though they found that parents who exhibited positive attitudes about the use of television in the home reported greater youth screen time, the study lacked broader focus and measurement of attitudes regarding online behavior.

Another study by Sanders and colleagues (2016) examined the relationship between negative attitudes about technology and restrictive technology-related parenting strategies across three developmental stages: young childhood, middle childhood, and

adolescence. While this study looked at parents' attitudes about technology, the focus was on negative attitudes. Furthermore, the results revealed no relationship between parents' negative attitudes about technology and technology-related parenting in any age group (Sanders et al., 2016). While some research has examined technology more broadly, most of the research fails to consider an important parental attitude, parents' approval of their adolescent's online behaviors; the current study was designed to address this gap.

The extent to which parents approve of their adolescents' engagement in OSB may be associated with parental mediation of these behaviors. To my knowledge, no studies have examined the link between parents' approval of their adolescents' OSB and their management of such behavior. Examining this link would provide unique insight into how parents' attitudes about their adolescents' OSB are positively or negatively associated with their engagement in a variety of parental mediation strategies. In addition to parental approval, another factor likely to be associated with parental mediation is parents' perceptions of other parents' approval. Social norms theory would suggest that parents' perceptions of other parents' approval of adolescent OSB would be associated with parents' decisions regarding mediation.

Social Norms Theory

Social norms theory focuses on environmental and interpersonal influences, including peers, on behavior change. The theory posits that peers have a greater influence on individual behavior than biological, personality, familial and other influences (Berkowitz & Perkins, 1986; Perkins, 2002). While social norms theory was first used to examine student alcohol use patterns (Perkins & Berkowitz, 1986) it has since been used

to examine other public health behaviors including tobacco use, marijuana and other illegal drug use, and sexual assault prevention (Bruce, 2002; Haines, Barker, & Rice, 2003; Perkins, 2003). Further, while a majority of the social norms research is on children and young adults, some studies have extended social norms theory to include adult samples (Murphy, Gordon, Sherrod, Dancy, & Kershaw, 2013; Napper, Hummer, Lac, & LaBrie, 2014; Rivis & Sheeran, 2003); the current study will further expand this literature.

The social norms literature suggests that peer influences are based more on what we think others believe and do ("perceived norm") than others' actual beliefs and actions ("actual norm"). The gap between the perceived norm and the actual norm is known as "misperception" and the effect of misperception on behavior is the foundation of social norms theory. Misperceptions occur when there is an over or under-estimation of the prevalence of attitudes (injunctive norm) and/or behaviors (descriptive norm) in a group or population (Berkowitz, 2004). Specifically, social norms theory posits that overprediction of peer participation in problem behaviors will lead to increased engagement in such behaviors. On the flip side, underestimation of positive behaviors will result in less engagement in such behaviors. In the context of the current study, if the majority of parents engaging in monitoring behavior such as limiting screen time, incorrectly believe that they are in the minority (pluralistic ignorance) they may engage in less monitoring behavior. On the other hand, if the minority of parents who are not engaging in monitoring behaviors incorrectly believe that they are in the majority (false consensus) they may feel encouraged to continue with low levels of monitoring. A third misperception, called false uniqueness occurs when an individual believes that their

behavior is more unique than it is (Berkowitz, 2004). Parents may misperceive the attitudes and/or behaviors of other parents in ways that influence their own parenting behavior (Berkowitz, 2004). Social norms theory provides an important perspective that social norms are linked to parents' feelings of approval toward OSB, as well as their actual behavior (i.e., active, and restrictive mediation).

Perceptions of Other Parents' Approval of Online Social Behavior

When examining the competency of their parenting, parents often look to what other parents say and do for feedback and support (Linkenbach, Perkins, & DeJong, 2003). While parents are important socializing agents for adolescent behavior and are responsible for engaging in parental mediation strategies that foster healthy, responsible online behavior, these technology-related parenting strategies may be susceptible to the influence of others. For example, parents often find that talking to their children about offline behaviors (e.g., alcohol use) and monitoring such behaviors are difficult tasks, as such, they often seek out support from fellow parents (King, Wagner, & Hedrick, 2002). Thus, it is not surprising that parents' attitudes about adolescent behaviors have been shown to be affected by parents' social networks (Homel, Burns, & Goodnow, 1987).

Literature on college student alcohol use has shown that parents significantly overestimated other parents' approval of students' alcohol use, as well as how much other parents talked to their college students about their frequency and quantity of alcohol use (LaBrie, Hummer, Lac, Ehret, & Kenney, 2011; Napper et al., 2014). These misperceptions of other parents' approval of alcohol use and alcohol-related parent-child communication were strongly associated with parents' own attitudes about their child's alcohol use, which in turn were associated directly with frequency and quantity of college

student alcohol use. Additionally, these misperceptions were indirectly associated with college students frequency and quantity of alcohol use through parent-child communication and student's own attitudes toward drinking (LaBrie et al., 2011; Napper et al., 2014).

Social norms theory operates on the premise that individuals' perceptions of normative behaviors are used to guide their own attitudes and behavioral patterns. Parents of adolescents likely hold perceptions about how approving other parents of adolescents are of adolescent OSB. Social norms theory would suggest that parents' perception of how approving other similar parents are of their adolescent's OSB (i.e., perceived norm; peer influence) would be associated with parents' own approval of their adolescent's OSB, and their subsequent engagement in active and restrictive mediation strategies.

Significance of Study Two

The central purpose of this study was to enhance family and prevention scientists' understanding of the role parents' and parents' perceptions of other parents have on active and restrictive parental mediation and adolescent engagement in OSB. By understanding the associations between parents' perceptions of other parents' approval of adolescent OSB and parents' own approval of adolescent OSB we have a clearer picture of how parents' attitudes relate to their engagement in mediation of their adolescent's online behavior. Further, this research was a first step in laying the groundwork for developing strategies targeted toward shaping and/or changing parents' attitudes about other parents' approval of adolescent OSB in ways that support their own mediation strategies and ultimately healthy, responsible adolescent OSB.

Research Questions

RQ 1: Are parents' perceptions of other parents' approval of adolescent OSB associated with parental approval of adolescent OSB? See Figure 4.

RQ 2: Are parents' perceptions of other parents' approval of adolescent OSB and parental approval of adolescent OSB associated with active or restrictive parental mediation? See Figure 4.

RQ 3: Is the relationship between parents' perceptions of other parents' approval of adolescent OSB and active or restrictive parental mediation mediated by parental approval of adolescent OSB? See Figure 4.

RQ 4: Is parental approval of adolescent OSB associated with adolescent engagement in OSB? See Figure 5.

RQ 5: Is active or restrictive parental mediation associated with adolescent engagement in OSB? See Figure 5.

RQ 6: Is the relationship between parental approval of adolescent OSB and adolescent engagement in OSB mediated by active or restrictive parental mediation? See Figure 5.

Method

Recruitment and data collection were the same for study one and study two, see pages 15-17 for a detailed description of the procedure used.

Adolescent Measures

Demographics

Adolescents self-reported demographic information (e.g., age, gender, race). See Table 1.

Online Social Behavior

Frequency of adolescent OSB was measured using four items from a previously established measure used to assess adolescent engagement in online behaviors (Livingstone, Haddon, Gorzig, & Olafsson, 2011). Adolescents were asked how often they have done the following in the past 12 months: "looked for new friends on the internet," "sent personal information (e.g., full name, address or phone number) to someone whom I have never met face-to-face," "added people to my friends list or address book whom I have never met face-to-face," and "sent a photo or video of myself to someone whom I have never met face-to-face." Response options ranged from 1 (*never/not in the past year*) to 5 (*every day or almost every day*). For research questions four through six, frequency of adolescent OSB was represented using a mean score (M = 1.89, SD = 1.11, range = 1-5; see Table 6). Alpha reliability was .90.

Parents Measures

Demographics

Parents self-reported demographic information (e.g., age, gender, race, household income, marital status, employment status, education level; see Table 1).

Active and Restrictive Mediation of Adolescent Online Behavior

Frequency of active and restrictive mediation were assessed using nine items from a longer list of previously established measures of parenting strategies specific to online behavior (Liau et al., 2008; Livingstone & Helsper, 2008; Sanders et al., 2016). Parents reported how often they use the following active mediation strategies (five questions) … for example: "talk to the child about what he/she is doing on the internet?" Parents reported how often they use the following restrictive mediation strategies (four questions) … for example: "demand to know which websites your child has visited?" Response

options range from 1 (*not at all*) to 3 (*frequently*). For research questions two, three, five and six, mean scores were used (active mediation, $M = 2.20$, $SD = 0.52$, range = 1-3; restrictive mediation, $M = 2.01$, $SD = 0.66$, range = 1-3 see Table 6). Alpha reliabilities for active and restrictive mediation were .83 and .89, respectively.

Parental Approval of Adolescent Online Social Behavior

As there are no established measures assessing parental attitudes about their adolescent's OSB, four items were developed for the current study. In alignment with the measure of common adolescent OSB used in this study (see description of adolescent reported OSB on pp. 38-39), these items reflected parents' approval of their children using the internet to interact with strangers online. Parents were asked the extent to which they approve of their adolescent using the internet to… "look for new friends," "send personal information (e.g., full name, address or phone number) to someone they have never met face-to-face," "adding friends to social media who they have never met face-to-face," and "sending photos of themselves to someone who they have never met face-to-face." Parents responded on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). For research questions one, two, three, four and six a mean score was used ($M = 2.40$, $SD = 1.13$, range = 1-5; see Table 6). Alpha reliability was .88.

Parents' Perceptions of Other Parents' Approval of Adolescent Online Social Behavior

No established measures assessing parents' perceptions of other parents' approval of adolescent OSB exist, therefore, four items were developed for the current study. Similar to the parental approval of OSB items, parents' perception of other parents' approval items aligned with the adolescent reported OSB items. The items reflected parents' perceptions of other parents' approval of their own children using the internet to

interact with strangers online. Parents were asked the extent to which they believe their friends and family with kids the same age as theirs approve of their children using the internet to… "look for new friends," "send personal information (e.g., full name, address, or phone number) to someone they have never met face-to-face," "adding friends to social media who they have never met face-to-face," and "sending photos of themselves to someone who they have never met face-to-face." Parents responded on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicated that parents perceived other parents strongly approved of adolescent OSB. For research questions one, two, and three, perceptions of other parents' approval were measured using a mean score (M = 2.65, SD = 1.14, range = 1-5; see Table 6). Alpha reliability was .90.

Data Analysis Plan

Preliminary Analyses

Prior to testing research questions, preliminary data analyses were conducted in SPSS. Specifically, data were checked for missing data, descriptive statistics were computed, correlations were computed to examine the relationships among study variables and checking the normality of study variables including skewness and kurtosis statistics (see Table 1 and Table 6 for statistics and correlations).

Missing Data

As was the case for study one, missing data for parent demographic information ranged from 0.0% to 5.5% (22 missing cases); missing data for adolescent demographic information ranged from 0.0% to 1.0% (4 missing cases). Missing data for parent reported measures (active parental mediation, restrictive parental mediation, parental

approval of OSB, parents' perceptions of other parents' approval of OSB) was 0.0%. A series of t-tests were computed to check for significant differences between those who were missing parent age versus those who were non-missing on parent age across key study variables; no significant differences were found. All missing data were recoded as -999. Full information maximum likelihood (FIML) was then used to estimate the final model using Mplus software (version 8.3).

Collinearity

Preliminary analyses revealed a high correlation between parents' perceptions of other parents' approval of adolescent OSB and parental approval of adolescent OSB ($r=.766$, $p<.001$). To address the high collinearity in the study variables a simple linear regression model was run using SPSS, regressing parents' perception of other parents' approval of adolescent OSB and parental approval of adolescent OSB on parental mediation (active and restrictive). Looking at the results of the simple linear regression, I assessed the variance inflation factor (VIF) which identifies the strength of the correlation between independent variables. A general rule of thumb is that VIFs between 1 and 5 suggest a moderate correlation that is not severe enough to warrant corrective measures (Frost, 2021); the VIF for perceptions of other parents' approval and parental approval were each under 2.5 indicating that correcting measures were not needed. I also assessed the condition index which indicates the degree of multicollinearity in a regression design matrix; values over 15 indicate that a multicollinearity problem may exist (Shrestha, 2020). The condition index for the full model was under 10.

Control Variables

To identify demographic control variables, correlations, t-tests, and ANOVAs among demographic variables (e.g., parent and child age, parent and child gender, parent marital status, education, income) and main study variables were computed. Like study one, only those significant variables were used as controls. Parent and child age as well as parent and child gender were significantly associated with main study variables and were controlled for in the full model (see Table 6).

Primary Analyses

In order to test research questions one, two, three, four, five, and six a path analysis was conducted using Mplus software (v. 8.3). Path analysis allowed for the assessment of both the direct (research questions one, two, four, and five) and indirect effects (mediation; research questions three and six). For this model, the bootstrap approach was used for testing the indirect effects. The non-bias-corrected bootstrap approach is recommended as it generally produces preferable confidence limits and standard errors for the indirect effect tests (Fritz, Taylor, & MacKinnon, 2012; see Figures 3 and 4). Model fit was assessed by examining several model fit indices including chi-square, Comparative Fit Index (CFI), Root Mean Squared Error of Approximation (RMSEA). A priori power analysis indicated that a sample of 402 parent-adolescent dyads was large enough to compute the proposed path analysis.

Results

Descriptive statistics and correlations are reported in Table 6. To answer research questions one, two, three, four, five, and six a path analysis was constructed in Mplus (v. 8.3) to examine the direct and indirect associations of parent approval of OSB, parents' perceptions of other parents' approval of OSB, active mediation and restrictive mediation

with adolescent OSB. (see Figures 4 and 5). Parent age, parent gender, adolescent age, and adolescent gender were included in the model as exogenous control variables. Model fit statistics suggested good model fit (χ^2= .75, *df* =1, *p* = .39, CFI = 1.00, RMSEA = .00).

Research Questions One, Two, Four, and Five

Results indicated that parent gender and parent age were negatively associated with parents' approval of OSB such that being female (β = -0.20, *p* = .009), and being older were associated with less parent approval of OSB (β = -0.01, *p* = .011; see Table 7). Child age and child gender were not associated with parents' approval of OSB (see Table 7). Parents' perceptions of other parents' approval of OSB were positively associated with parents' own approval of OSB even after accounting for demographics (β = .73, *p* < .001; RQ 1, see Figure 6 and Table 7).

Parent/adolescent age and gender were not associated with active or restrictive mediation in the full model. Neither parents' perceptions of other parents' approval of OSB nor parents' own approval of OSB were associated with active mediation (RQ 2, see Figure 6 and Table 7). Parents' perceptions of other parents' approval of OSB and parents' own approval of OSB were not associated with restrictive mediation (RQ 2, see Figure 6 and Table 7).

None of the demographic controls (parent/adolescent age and gender) were associated with adolescent OSB in the full model (see Table 7). Parent approval of OSB (β = .47, *p* < .001) was positively associated with adolescent OSB above and beyond demographic controls (RQ 4, see Figure 6 and Table 7). Active mediation (β = .31, *p* <.01) was positively associated with adolescent OSB after controlling for demographics,

however, restrictive mediation was not associated with adolescent OSB (RQ 5, see Figure 6 and Table 7).

Indirect Effects

In this model, four indirect effects were tested: 1) the mediating effect of parents' approval of OSB on the relationship between parents' perceptions of other parents' approval of OSB and restrictive mediation (RQ 3, see Figure 4); 2) the mediating effect of parents' approval of OSB on the relationship between parents' perceptions of other parents' approval of OSB and active mediation (RQ 3, see Figure 4); 3) The mediating effect of restrictive mediation on the relationship between parent approval of OSB and adolescent OSB (RQ 6, see Figure 5); and 4) the mediating effect of active mediation on the relationship between parent approval of OSB and adolescent OSB (RQ 6, see Figure 5). The indirect effects of parents' perceptions of other parents' approval of OSB on active mediation and restrictive mediation through parents' approval of OSB were non-significant (RQ 3). Results also revealed that active and restrictive mediation did not mediate the effect of parent approval of OSB on adolescent OSB (RQ 6). These findings do not support a mediation model.

Discussion

Parents' Perceptions of Other Parents' Approval of OSB and Parents' Own Approval of OSB

Consistent with social norms theory, the current study supports the idea that ones' perceptions of their peers' attitudes and behaviors are associated with their own attitudes and behaviors. Specifically, results suggest parents' perceptions of other parents' approval of adolescent OSB are positively associated with parents' own approval of their

adolescents' OSB. While the study highlights a foundational concept of the social norms approach, that individuals' perceptions of their peers' attitudes and behaviors are associated with their own attitudes and behaviors, another important concept has yet to be addressed. Specifically, social norms theory suggests that individuals' perceptions of their peers' attitudes and behaviors are often inaccurate. Findings set the stage for future research exploring 1) whether parents' perceptions of other parents' attitudes about OSB are, in fact accurate, and 2) how these (in)accurate perceptions are associated with parental mediation behavior.

There were no significant associations between parents' perceptions of other parents' approval of adolescent OSB and active or restrictive mediation. There were also no significant associations between parents' own approval of adolescent OSB and active or restrictive mediation. Further, parent approval of OSB did not mediate the relationship between parents' perceptions of other parents' approval and active or restrictive mediation. It is interesting that although parents' perception of other parents' approval was significantly associated with restrictive mediation in the bivariate correlations, this relationship was no longer significant after accounting for demographic controls. Results of the final path model indicated that parent gender and parent age were negatively associated with parents' approval of OSB such that being female and being older were associated with less parental approval of OSB. It may be that older mothers are less approving of OSB because they are uncomfortable with or have less experience with technology. Older mothers may look to their adolescent to help them with using technology (e.g., having their adolescent help set up their smart phone). Younger parents, on the other hand, might be more comfortable using technology, so they see OSB as less

problematic because they have more experience using technology themselves and feel confident in their ability to help their adolescent navigate online platforms. Recent research highlights differences in technology use by parent age with parents under the age of 50 more likely to report spending too much time on their smartphone than parents over 50-years-old (Auxier, Anderson, Perrin, & Turner, 2020). Further, results of an independent samples *t*-test comparing male and female parents indicated that male parents in the current sample perceive that other parents are more approving of OSB, compared to female parents (see Table 8). It is plausible that the effect of the relationships between parents' perceptions of other parents' approval and active or restrictive mediation is moderated by parent gender.

Active and Restrictive Mediation

Parents' perceptions of other parents' approval as well as parents' own approval were not associated with parental mediation strategies; these findings do not align with the tenants of social norms theory or previous research assessing the associations between parent approval and perceptions of other parents' approval in the context of other health risk behaviors like substance use (LaBrie, Napper, & Hummer, 2014). It may be that there was an unaccounted variable at play. For instance, parenting styles have been found to be related to parental mediation of children's internet use (Eastin et al., 2006). Specifically, authoritative parents were more likely to use active mediation strategies, while authoritarian and neglectful parents were more likely to use restrictive mediation strategies. An authoritative parent may engage in less mediation if the parent is highly approving of OSB compared to an authoritative parent who is highly disapproving of OSB.

Social comparisons parents have to other parents may also be associated with engagement in active or restrictive mediation. Social comparison theory posits people constantly evaluate their opinions and abilities by comparing themselves to others (Kretz, 2020). It may be that parents' engagement in parental mediation is based on their comparisons of other parents' engagement in parental mediation. Social comparison research has shown that while comparison can lead individuals to be motivated to improve behavior, they may also feel dissatisfied and guilty which can lead to individuals falsifying their behavior (Tesser, Millar, & Moore, 1988). It is plausible that parents engage in active or restrictive mediation because social comparisons have led to an increase in mediation. It may also be that parents report engagement in parental mediation because they feel it would be socially unacceptable to say they do not monitor their teen's online behavior.

While active mediation did not mediate the relationship between parent approval of OSB and adolescent OSB, there was a positive association between active mediation of adolescent OSB and adolescent OSB. These results are in line with previous literature (Durager & Livingstone, 2012; Wisniewski et al., 2015) suggesting that active mediation is likely a reactive response triggered when parents perceive that the OSB their adolescent is engaging in behavior that puts them at risk of harm (e.g., misuse of their personal information, victimization).

When parents feel that their adolescent is engaging in OSB that may put them at risk for harm such as sending personal pictures to online strangers, they may be compelled to talk with their adolescent about what they are doing online or utilize more strategies to keep their adolescent safe. The cross-sectional nature of the current study, however, does not

allow for bidirectional claims to be made. Future longitudinal research assessing active mediation before and after risk encounters would allow for an examination of how active mediation and OSB influence each other over time. For instance, parents' engagement in active mediation in response to their adolescents' online behavior may prompt adolescents to change their OSB habits. Understanding the bidirectional relationships between active mediation and adolescent OSB would provide insight into the effectiveness of active mediation in preventing further risk. **Adolescent OSB**

Social norms theory suggests others' attitudes and behaviors influence one's own behavior. Results of the current study indicate that parents' attitudes about online behavior are associated with adolescent OSB, regardless of parents' mediation strategies. Consistent with previous research (Chang et al., 2015; Lwin et al., 2008; Wisniewski et al., 2015) active mediation, restrictive mediation, and adolescent OSB were significantly related in the bivariate correlations. However, the associations between restrictive mediation and adolescent OSB were no longer significant after taking into account parent and adolescent age and gender. Based on the results of independent samples *t*-tests comparing male and female parents, male parents were more approving of adolescent OSB than female parents; there were no differences in active or restrictive mediation. It appears that gender differences in parental approval of OSB exist. It is also plausible that an interaction between parent and adolescent gender exists such that fathers are more approving of their son's OSB than their daughter's OSB. It may be that the effect of parental approval on parental mediation and its subsequent effect on adolescent OSB depends on whether the parent and adolescent are male or female.

Another explanation for the lack of support for the mediation model could be that active and/or restrictive mediation may be influenced by family context, including parents' time away from home due to employment. Prior research has shown a positive association between full-time maternal employment and child externalizing behaviors (Lucas-Thompson, Goldberg, & Prause, 2010). For working adults, work-related hours including commuting time are increasing in the United States and many employed parents worry about a lack of time for their children (Repetti & Wang, 2014). It is plausible that even though parents working outside the home might have similar levels of approval of OSB compared to unemployed parents or parents working from home, they find it harder to find the time and energy to engage in parental mediation strategies.

Limitations and Future Directions

While the findings of this study contribute valuable information to the body of research on social norms and parental mediation, it is important to acknowledge the limitations. First, adolescent participants reported low rates of OSB (M = 1.89, SD = 1.11, range = 1-5; see Table 6). It is possible that in a high-risk sample, the associations between parents' perceptions of other parents' approval or parents' own approval with parental mediation strategies might present themselves. Second, the cross-sectional nature of this study prevents us from making causal claims about the examined associations. We are unable to draw conclusions about how parents' perceptions of other parents' attitudes, their own attitudes, as well as their parenting strategies related to online behavior may change over time. It is plausible that adolescent OSB precedes parental mediation. Research has shown that parental mediation may be both preventative and reactionary (Wisniewski et al., 2015). For example, parents might initially approve of

their adolescent's OSB, but then find out that their young adolescent is meeting much older online strangers in real life. The parents might react by setting strict limits on the types of websites their child can access and talking more frequently with their child about potential risks that he/she can encounter on the internet. Longitudinal research would be beneficial for exploring the potential bidirectional relationships between parental approval, adolescent OSB, and parents' engagement in mediation strategies. Future research should also explore other possible factors associated with active and restrictive mediation. Specifically, research examining the impact that COVID-19 has had on shifting parenting practices surround adolescent technology use is crucial. Longitudinal research should be conducted to strengthen our understanding of these relationships and how parental mediation and adolescent OSB are associated with one another over time within the context of a global pandemic. Specifically, additional waves of data could be collected assessing these relationships six-months, one year, and two years post COVID-19 social distancing orders.

The current study was one of the first to apply social norms theory to parenting behavior. It has been recommended that there is a need for more specific testing of the assumptions of social norms theory (Dempsey, McAlaney, & Bewick, 2018). Specifically, it has been suggested that interventions using the social norms approach evaluate perceived norms pre- and post-intervention, evaluate whether interventions are associated with changes in perceived norms, and analyze how changes in perceived norms explain changes in behavior and/or attitudes (Dempsey et al., 2018). If most parents do not approve of adolescent OSB (defined in this study as online behaviors involving social interactions with online strangers), and engage in parental mediation, but

also believe that their peers are approving of adolescents OSB and are not engaging in parental mediation, then a social norms marketing campaign may be effective in reducing the misperceptions and encouraging increased engagement in parental mediation strategies.

Future research should also examine differences in family structure as it relates to parental approval and parental mediation of adolescent online behavior. For instance, active and/or restrictive mediation may look different for single-parent families compared to two-parent families. Past research supports links between single-parenthood status, lack of parental supervision, and less time to carry out parenting tasks (Cooney & Mortimer, 1999). Single-parent families tend to have lower socioeconomic status compared to two-parent families (Amato, 2000) and tend to spend more time away from the home working to support their family (Kendig & Bianchi, 2008). Even though single parents may be just as (dis)approving of OSB as two-parent families, they may have less time to heavily engage in active or restrictive mediation. Furthermore, inconsistent parental mediation could be present as adolescents transfer from one parent's house to the other parent's house. Research should explore other variables that might impact the relationship between parent approval and adolescent OSB.

Finally, it is important to think about the historical context in which the research was conducted. Drawing on the bioecological perspective, it is important to recognize that one's life course is embedded in and shaped by the historical time and space that one lives (Bronfenbrenner, 1995). Therefore, it would be remiss to not acknowledge the current historical context in which we are all living, amid the COVID-19 pandemic. COVID-19 is drastically changing family life and for those parents living in crowded and

low-income households, the task of keeping their children busy and safe is even more daunting. Lockdowns across the United States due to COVID-19 have resulted in the sudden closure of many schools, resulting in a widespread shift from traditional in-person school to fully remote or hybrid learning. As a result, children and parents have had to rely heavily on technology for school and work-related tasks, as well as for most of their social interactions. Stress challenges people's capacity for tolerance and long-term thinking; the pandemic is a stress that originated outside of the family system, however, given the novelty and uncertainty of COVID-19 it makes sense that it would be a significant stress for many parents and children. Future research should take into consideration how the historical time and space (living in the COVID-19 pandemic) might impact the relationships between parental approval, perceptions of other parents' approval, parental mediation of adolescent online behavior, and adolescent OSB. Family dynamics, stress, and limited opportunity for in-person interactions during the COVID-19 pandemic are important factors that might impact the relationships between parents' approval of OSB, parental mediation, and adolescent OSB.

Implications

Social norms campaigns are a big focus of prevention efforts for young people and have been found to be successful in reducing a number of health risk behaviors including alcohol use (Mogro-Wilson, Allen, & Cavallucci, 2017). It is reasonable to hypothesize that social norms campaigns may also be successful in influencing parental mediation strategies by shaping parents' social norms surrounding adolescent OSB. Social norms theory suggests that the effectiveness of social norms campaigns can be improved if the norms that are promoted reflect a group that individuals, in this case,

parents, closely identify with (National Social Norms Center [NSNC], 2019). If parents feel that social norms campaigns promoting engagement in parental mediation, for example, align with their values and beliefs, they are more likely to be influenced by such campaign strategies. The current study provides promising evidence for moving the application of social norms beyond adolescent substance use, to parental mediation of adolescent online behavior. The current study adds to the field by being one of few studies to apply social norms theory to non-university settings. Understanding the links between parents' perceptions of other parents' attitudes, parents' attitudes, and adolescent engagement in OSB can help us lay the groundwork for developing strategies that support parents in cultivating a realistic understanding of adolescent OSB, reconcile when perspectives differ from others, and ultimately promote healthy, responsible adolescent OSB.

Integrated Discussion

These two studies explored the complex relationships between adolescent mental and behavioral health, parent-child communication and relationship quality, parental mediation, and adolescent OSB. Specifically, study one examined how individual adolescent factors were associated with parental mediation strategies through proximal processes including parent-child relationship quality, adolescent disclosure, and secrecy. Study two examined associations between parents' perceptions of other parents' approval, parents' own approval, their monitoring of online behavior, and their adolescents' subsequent OSB. Results of these studies contribute to the field by providing a preliminary understanding of the associations between individual, and family-level factors and parents' engagement in active and restrictive mediation.

These studies are connected by examining how adolescent characteristics are associated with parenting strategies (study one), and how these parenting strategies are associated with adolescents' online behavior (study two, see Figure 1). Together, findings indicated that adolescent mental and behavioral health were associated with active and restrictive mediation, but only active mediation was associated with adolescent OSB. It appears that proximal processes between parents and adolescents are associated with technology-related parenting environments. Specifically, two parent-child relationship factors, adolescent disclosure, and secrecy were associated with restrictive mediation, and disclosure alone was associated with active mediation. Results of study two suggest that adolescent engagement in OSB differs based on parents' approval of OSB, as well as parents' level of engagement in active mediation, but not restrictive mediation. Specifically, parent approval of OSB and active mediation were both positively associated with adolescent OSB; however, restrictive mediation was not associated with adolescent OSB. While active and restrictive mediation have been found to mitigate negative effects of online behavior (Lwin et al., 2008, Valkenburg et al., 2013), it appears that parents' engagement in active mediation strategies may be associated with adolescents' engagement in OSB in ways that restrictive mediation is not.

Limitations and Future Directions

Together, these two studies contribute to the parental mediation literature by providing a deeper understanding of factors associated with active and restrictive mediation. These studies focused on individual parent, child, and peer factors, and their associations with parental mediation strategies; however, there were a number of limitations that should be addressed. First, the cross-sectional nature of these studies

limits our ability to test the two study models together and over multiple time points. It is crucial for future research to examine these complex associations longitudinally (e.g., from early adolescence to late adolescence) in order to better understand the directionality and changes in these associations over time and across adolescent development. Further, much of the data collected were self-report, subjecting the results to recall bias, in which participants over- or under-estimate their behavior. Thus, results must be interpreted with caution. In the future, research should include self-report measures from parents, adolescents, and co-parents at multiple time points as this will help to limit such bias.

Next, by using data from participants recruited using online panels, there is a risk that the sample was not fully representative of the U.S. population. Specifically, in general, individuals who are participating in online surveys are those that have easy access to the internet and are likely very comfortable using technology. Thus, there is a possibility that we missed out on recruiting parents who are less tech savvy or do not spend a lot of time online. There is also the issue of respondent fraud or bias. Because we cannot verify the identity of a respondent in-person, it is possible that online research panel respondents may embellish their income range, education, job role, or even parenthood status, leading to respondents answering surveys that they otherwise might not qualify for. This in turn effects the quality of the data collected. To avoid this bias in future research, in-person recruitment should be used. In-person recruitment would help to recruit a more representative sample and provide more accurate screening of potential participants to avoid respondent fraud or bias.

It is also possible that adolescent mental and behavioral health, parent-child relationship quality, and parental mediation strategies are related to each other in ways not explored in study one. For example, anxiety, depression, and externalizing may act as moderators of the relationships between parent-child relationship quality with active and restrictive mediation. Research shows internalizing and externalizing behavior are associated with the parent-child relationship (Brook et al., 2012). It is also plausible that adolescent internalizing and externalizing may interact with parent-child relationship quality, altering the effect of relationship quality on parents' engagement in active or restrictive mediation. Specifically, when adolescents are high on anxiety, depression, or externalizing, parents may engage in more active and restrictive mediation even if parents perceive high parent-child relationship quality, compared to when adolescents are low on anxiety, depression, or externalizing. While research has looked at various links between anxiety, depression, externalizing and parent-child relationship quality, to my knowledge, no research has examined the moderating effect of adolescent anxiety, depression, or externalizing on the links between parent-child relationship quality and active or restrictive mediation. Future research should examine how interactions between adolescent anxiety, depression, and externalizing with parents' perceptions of parent-child relationship quality is associated with active and restrictive mediation. Examining the impact of adolescent mental and behavioral health on the links between parent-child relationship quality and parental mediation would provide an understanding of how, in the context of anxiety, depression, and/or externalizing, the quality of the parent-child relationship may impact parents' monitoring of their adolescents' OSB. This would help

researchers tailor programs to address adolescent mental and behavioral health to improve parental engagement in mediation strategies.

Additionally, the current study considered adolescent disclosure and secrecy overall, rather than looking at disclosure and secrecy "in-person" or "using technology". The rationale for this was because the focus was more about whether adolescents were disclosing/keeping secrets at all rather than what mode they were using. It may prove useful, however, to have examined disclosure and secrecy using technology. It could be that the associations between disclosure, secrecy, and active mediation or restrictive mediation depend on the mental and behavioral health of the adolescent and differ by technology use. For an adolescent experiencing low levels of anxiety, depression, or externalizing, disclosing information in-person, or using technology may not seem like a big deal. They may not feel the need to keep secrets from their parents in-person or using technology. For an adolescent experiencing high anxiety, depression, or externalizing, however, disclosing information and keeping secrets from their parents via technology may feel less overwhelming than in-person, as they can avoid face-to-face interaction. To my knowledge, only two studies have examined adolescent disclosure using technology (Rudi & Dworkin, 2018a, 2018b) and no studies have examined adolescent secrecy using technology. There is a gap in our understanding of how adolescents use technology to disclose information and keep secrets from their parents. Studying disclosure and secrecy using technology, in particular, may offer insight into how adolescents choose to share information and keep secrets from their parents. Further, it may provide an understanding of how using technological devices such as cell phones to disclose information or keep secrets uniquely impacts parents' engagement in parental mediation strategies. It may be

that technology provides more opportunities for adolescents to disclose information, resulting in increased disclosure. Specifically, adolescents who are uncomfortable disclosing information face-to-face may feel more comfortable doing using technology as it less personal. It may be that when adolescents are not disclosing information to their parents in-person or using technology, parents react by engaging in more parental mediation. Further, if parents have reason to believe their adolescent is keeping secrets using technology, they might respond by engaging in more mediation strategies. It may be that when adolescents are disclosing information to their parents using technology, but not in-person, parents react by using their own technological devices to talk with their teen about their online behavior. However, if parents have reason to believe their adolescent is keeping secrets using technology, they might respond by engaging in more in-person mediation strategies.

Finally, while these studies were examined individually, we have yet to test the combined conceptual model. Doing so may help us to piece together a more complete understanding of the individual, and family-level factors associated with parental mediation and adolescent OSB. For example, researchers should consider how mental health is associated with OSB through its associations with parental mediation. Research has shown that adolescents with social anxiety tend to avoid in-person social interactions as their social anxieties can be triggered by peer interactions (Erath, Flanagan, Bierman, 2007). However, other research has indicated that the internet provides some socially anxious adolescents with alternative opportunities to form relationships (Koo, Woo, Yang, & Kwon, 2015). Online social interactions do not require physical proximity to peers and allow individuals to delay feedback and edit their responses prior to sending

them (Wang, Jackson, & Zhang, 2011). These characteristics may help anxious adolescents to feel safe interacting socially with their peers. It is plausible that parents engage in parental mediation strategies not only to foster safe online behavior but to support their socially anxious children in forming peer relationships through online spaces. The integration of these two studies would allow for such considerations to be explored. Specifically, future research should explore the mediating effects of active and restrictive mediation on the relationships between adolescent anxiety, depression, externalizing, and adolescent OSB. This would provide a unique understanding of how adolescent mental and behavioral health impact adolescent engagement in OSB directly, and indirectly through parents monitoring of their adolescents' online behavior.**Implications**

Despite the limitations of these studies, the results have important implications for parents and researchers. First, findings indicate that it is important for parents to consider the type of parenting strategies they employ when monitoring their teens' online behavior. Specifically, results suggest that parents may want to consider the type of mediation they engage in based on their approval of adolescent OSB – how parents feel about the behavior should influence how they choose to monitor/control their adolescent's behavior.

Second, practitioners should encourage parents to foster open communication with their children about their whereabouts and activities, both offline and online, as this can help parents make decisions about the types of mediation to engage in. When adolescents disclose information to their parents, it is associated with increased active

and restrictive mediation, both of which have been found to mitigate the risks associated with adolescent OSB.

Third, results provide support for the recommendation that parents should be talking with their teens about their online behavior. It is well established that youth are spending large amounts of time online engaging in social activities (Mikami et al., 2010). When parents talk with their adolescents about what they are doing online and the risks associated with OSB, they can support them in navigating online spaces in a healthy and safe way. Another way to support healthy online behavior is for educators and administrators to focus on providing more education on parenting strategies related to online behavior. This would provide an opportunity to get parents on the same page as each other about their approval of OSB and engagement in mediation strategies. Having a clear understanding of other parents' attitudes about OSB and engagement in mediation strategies, may lift pressure that parents feel to engage, or not engage, in mediation. Parents can then focus on engaging in mediation strategies that fit their own attitudes, beliefs, and the needs of their own adolescents.

It is also important to consider the larger social context in which OSB and mediation are taking place. For instance, it is critical to recognize the role of the COVID-19 pandemic in impacting parents' involvement in mediation strategies. Since the start of COVID-19, we have seen a drastic shift in work and school environments. The role of technology is changing for parents and youth as they are accessing the internet more for work and school. This shift in remote work and learning has required many families to utilize shared spaces to complete their work. Therefore, parents may have more opportunities to engage in co-using mediation which refers to sitting nearby while their

child is online. Often, co-using strategies have been combined with active mediation strategies (Livingstone & Helsper, 2008). However, more research should be done to examine co-using separately. It may be that this increased opportunity for co-use, provides more chances for parents to talk with their adolescents about what they are doing online. It is important to recognize, however, that not all parents have been able to work from home; it may be that this shift in work and education does not apply to all families. It would be valuable to compare families who are working and learning remotely to families who are working and going to school in-person.

Conclusion

The current research fills important gaps in the parental mediation literature by providing insight into the various factors associated with active and restrictive mediation of adolescent online behavior. Individual and parent-child relationship factors, including adolescent depression, externalizing, parent approval of OSB, secrecy, and disclosure are important factors associated with parental mediation. Parents, practitioners, and researchers need to understand parents' varying engagement in active and restrictive mediation and how it differs by individual (mental and behavioral health, parents' attitudes toward OSB) and parent-child relationship factors (disclosure and secrecy). Understanding these associations can help parents make informed decisions on which type(s) of parental mediation to engage in to foster safe, responsible adolescent OSB. Further, it can help practitioners tailor education to their audience and help researchers ask more complex research questions.

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Table 1

Descriptive Statistics of Demographic Variables for Studies One and Two

	N	%	*M*	*SD*
Parent Variables				
Age	380	94.5	43.36	8.79
Missing	22	5.5		
Gender				
Male	153	38.1		
Female	249	61.9		
Race				
White/Caucasian	270	67.2		
Black/African American	86	21.4		
Asian/Asian American	15	3.7		
American Indian or Alaska Native	7	1.7		
More than one race	13	3.2		
Other	9	2.2		
Missing	2	0.5%		
Latino				
Yes	61	15.2		
No	341	84.8		
Income			3.80	1.79
<$25,000	54	13.4		
$25,000-$34,999	51	12.7		
$35,000-$49,999	60	14.9		

$50,000-$74,999	96	23.9		
$75,000-$99,999	67	16.7		
$100,000-$149,000	50	12.4		
$150,000 or more	16	4.0		
Rather not say	8	2.0		
Employment				
Employed full-time	224	55.7		
Employed part-time	58	14.4		
Not currently employed outside the home	120	29.9		
Marital status				
Married	217	54.0		
Living together, not married	47	11.7		
Single, never been married	68	16.9		
Divorced	48	11.9		
Separated	8	2.0		
Widowed	14	3.5		
Education level			5.02	1.94
8th grade or less	6	1.5		
Some high school	17	4.2		
High school graduate or GED	92	22.9		
Some college	77	19.2		
Associate degree	56	13.9		
Technical school graduate	12	3.0		
College graduate (Bachelor's degree)	94	23.4		
Post graduate work	48	11.9		
Adolescent Variables				
Age	398	99	15.32	*1.47*
Missing	4	1		

Gender		
Male	204	50.7
Female	194	48.3
Transgender/nonbinary	4	1.0
Race		
White/Caucasian	263	65.4
Black/African American	84	20.9
Asian/Asian American	15	3.7
American Indian or Alaska Native	7	1.7
Native Hawaiian or other Pacific Islander	2	0.5
More than one race	22	5.5
Other	8	2.0
Missing	1	0.2
Latino		
Yes	64	15.9
No	336	83.6
Rather not say	2	0.5

Table 2

Correlations and Descriptive Statistics for Study One Variables

Parent Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Disclosure (Sum)	-											
2. P-C RQ	.300**	-										
3. Active Mediation	.182**	.075	-									
4. Restrictive Mediation	.223**	.043	.702**	-								
5. Age	-.128**	-.063	.022	-.043	--							
6. Gender	-.040	.085	.022	-.013	-.010	-						
Adolescent Variables												
7. Anxiety	.021	-.103*	.076	.017	-.065	.006	-					
8. Depression	.026	-.169**	.057	.032	-.038	-.076	.691**	-				
9. Externalizing	.020	-.170**	.081	.102*	-.055	-.075	.327**	.399**	-			
10. Secrecy (Sum)	.217**	-.118*	.064	.187**	-.062	-.229**	.198**	.343**	.317**	-		
11. Age	.018	-.102*	-.010	-.019	-.021	-.025	.011	.055	.060	.056	-	
12. Gender	-.081	-.027	.040	.107*	-.026	-.026	-.093	-.096	-.037	.062	-.011	-
Mean	8.24	4.60	2.20	2.01	43.36	-	6.54	5.46	1.23	5.41	15.32	-
SD	1.25	0.42	0.52	0.66	8.79	-	2.65	2.64	0.37	2.50	1.47	-

Range	4.5-10	2.57-5	1-3	1-3	26-76	1-2	3-12	3-12	1-3	2-10	13-18	1-2

Note: *p<.05, **p<.01. Disclosure ranged from 1 (*never*) to 5 (*always)*; P-C RQ ranged from 1 (*never*) to 5 *(always)*; parental mediation ranged from 1 (*not at all*) to 3 (*frequently*); anxiety and depression ranged from 1 (*not at all*) to 4 (*a lot*); externalizing ranged from 1 (*not true)* to 3 (*often true)*; secrecy ranged from 1 (*never*) to 5 (*always).*

Table 3
Mean Differences in Main Study One Variables by Parent Gender

	Male (n=153)		Female (n=249)		t
	M	SD	M	SD	
Parent Variables					
Disclosure	8.30	1.23	8.20	1.26	.794
P-C RQ	4.56	0.42	4.63	0.41	-1.71
Active Mediation	2.20	0.51	2.22	0.53	-.434
Restrictive Mediation	2.03	0.60	2.01	0.69	.267
Adolescent Variables					
Anxiety	6.51	2.58	6.54	2.69	-0.119
Depression	5.71	2.80	5.30	2.54	1.52
Externalizing	1.26	0.45	1.20	0.32	1.51
Secrecy	6.15	2.43	4.97	2.44	4.70*

Note: * $p<.01$

Table 4

Mean Differences in Main Study One Variables by Adolescent Gender

	Male (n=204)		Female (n=194)		t
	M	SD	M	SD	
Parent Variables					
Disclosure	8.066	1.27	8.40	1.19	-2.67*
P-C RQ	4.59	0.40	4.62	0.44	-0.75
Active Mediation	2.23	0.54	2.19	0.51	.659
Restrictive Mediation	2.02	0.65	2.03	0.66	-.176
Adolescent Variables					
Anxiety	6.28	2.50	6.74	2.76	-1.72
Depression	5.37	2.58	5.49	2.71	-0.46
Externalizing	1.26	0.42	1.19	0.31	1.88
Secrecy Tech	5.64	2.46	5.21	2.54	1.72

Note: *p<.01

Table 5

Study One Pathway Results for Associations Between Demographic Controls and Main Study Variables

Path	Estimate	SE	p-value
Parent Age →Disclosure	-.031*	.014	.031
Parent Gender →Disclosure	-.212	.123	.084
Adolescent Age →Disclosure	-.037	.084	.663
Adolescent Gender → Disclosure	0.359**	.120	.003
Depression →Disclosure	.005	.033	.871
Anxiety → Disclosure	-.004	.032	.894
Externalizing → Disclosure	.059	.182	.746
Parent Age → Secrecy	-.060*	.028	.029
Parent Gender → Secrecy	-.965***	.235	.000
Adolescent Age → Secrecy	.044	.160	.783
Adolescent Gender → Secrecy	-.192	.228	.400
Depression → Secrecy	.281***	.060	.000
Anxiety → Secrecy	-.069	.059	.237
Externalizing → Secrecy	1.33***	.329	.000
Parent Age → P-C RQ	.001	.001	.336
Parent Gender → P-C RQ	.013	.010	.200
Adolescent Age → P-C RQ	-.003	.007	.675

Adolescent Gender → P-C RQ	.003	.010	.742
Depression → P-C RQ	-.004	.002	.077
Anxiety → P-C RQ	-.001	.002	.714
Externalizing → P-C RQ	-.023	.014	.094
Parent Age →Active Mediation	-.007	.006	.264
Parent Gender → Active Mediation	.054	.055	.329
Adolescent Age → Active Mediation	-.060	.037	.100
Adolescent Gender → Active Mediation	-.093	.057	.102
Disclosure → Active Mediation	.143*	.056	.010
Secrecy → Active Mediation	-.014	.018	.426
P-C RQ → Active Mediation	-2.49	1.79	.165
Parent Age →Restrictive Mediation	-.020**	.008	.008
Parent Gender → Restrictive Mediation	.042	.067	.534
Adolescent Age → Restrictive Mediation	-.085	.045	.058
Adolescent Gender → Restrictive Mediation	-.011	.064	.859
Disclosure → Restrictive Mediation	.091**	.028	.001
Secrecy → Restrictive Mediation	.036**	.013	.007
P-C RQ → Restrictive Mediation	.083	.338	.807

Note: *p<.05, **p<.01, ***p<.001. See figure 3 for a visual representation of significant pathways.

Table 6

Correlations and Descriptive Statistics for Study Two Variables

Parent Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Active Mediation	-								
2. Restrictive Mediation	.704**	-							
3. Parental Approval	.066	.091	-						
4. Parents' Perceptions of other Parents' Approval	.091	.133**	.766**	-					
5. Parent Age	.022	-.043	-.198**	-.191**	-				
6. Parent Gender	.022	-.013	-.145**	-.102*	-.010	-			
Adolescent Variables									
7. Online Social Behavior	.229**	.219**	.525**	.445**	-.169**	-.149**	-		
8. Adolescent Age	-.101	-.019	-.034	-.075	.279**	.103*	-.087	-	
9. Adolescent Gender	.040	.107*	-.078	-.117*	.012	.166*	-.113*	.021	-
Mean	2.20	2.01	2.40	2.65	43.36	-	1.89	15.32	-
SD	0.52	0.66	1.13	1.14	8.79	-	1.11	1.47	-
Range	1-3	1-3	1-5	1-5	26-76	1-2	1-5	13-18	1-2

Note: *p<.05, **p<.01. Parental mediation ranged from 1 (*not at all*) to 3 *(frequently)*; parental approval and parents' perceptions of other parents' approval ranged from 1 (*strongly disagree)* to 5 *(strongly agree)*; online social behavior ranged from 1 (*never/not in the past year*) to 5 (*every day or almost every day)*.

Table 7

Study Two Pathway Results for Associations Between Demographic Controls, and Main Study Variables

Path	Estimate	SE	p-value
Parent Age → Parental Approval	-.012**	.004	.006
Parent Gender → Parental Approval	-.198*	.078	.011
Adolescent Age →Parental Approval	.036	.026	.165
Adolescent Gender → Parental Approval	.115	.074	.121
Parents' Perceptions of other Parents' Approval → Parental Approval	.734***	.038	.000
Parent Age →Active Mediation	-.003	.004	.454
Parent Gender → Active Mediation	.048	.056	.385
Adolescent Age → Active Mediation	-.021	.020	.277
Adolescent Gender → Active Mediation	-.024	.055	.664
Parents' Perceptions of other Parents' Approval → Active Mediation	.030	.038	.427
Parental Approval → Active Mediation	-.001	.038	.980
Parent Age →Restrictive Mediation	-.008	.005	.067
Parent Gender → Restrictive Mediation	.002	.068	.974
Adolescent Age → Restrictive Mediation	-.027	.025	.287
Adolescent Gender → Restrictive Mediation	.041	.067	.541
Parents' Perceptions of other Parents' Approval → Restrictive Mediation	.068	.051	.188

Parental Approval → Restrictive Mediation	-.025	.050	.625
Parent Age → Online Social Behavior	-.003	.005	.548
Parent Gender → Online Social Behavior	-.149	.097	.127
Adolescent Age → Online Social Behavior	-.039	.030	.193
Adolescent Gender → Online Social Behavior	-.128	.093	.172
Parental Approval → Online Social Behavior	.471***	.050	.000
Active Mediation → Online Social Behavior	.309**	.113	.006
Restrictive Mediation → Online Social Behavior	.063	.050	.208

Note: *p<.05, **p<.01, ***p<.001. See figure 6 for a visual representation of significant pathways.

Table 8
Mean Differences in Main Study Two Variables by Parent Gender

	Male (n=153)		Female (n=249)		t
	M	SD	M	SD	
Parent Variables					
Active Mediation	2.20	0.51	2.22	0.53	-.434
Restrictive Mediation	2.03	0.60	2.01	0.69	.267
Parental Approval	2.62	1.21	2.27	1.06	2.93**
Parents' Perceptions of Other Parents' Approval	2.80	1.17	2.57	1.12	2.04*
Adolescent Variables					
Online Social Behavior	2.09	1.21	1.76	1.02	3.01**

Note: * $p<.05$ ** $p<.01$

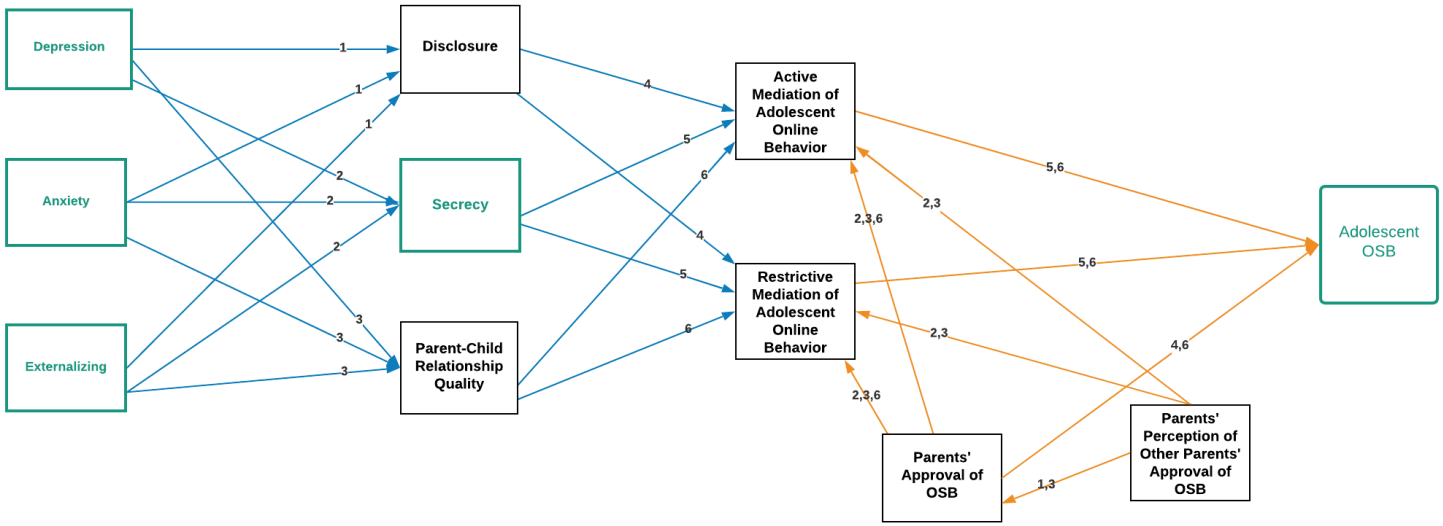

Figure 1. Full conceptual model. Blue lines represent study one; orange lines represent study two. For study two, numbers 3 and 6 refer to the mediation effects of parental approval of OSB and parental mediation. Green boxes represent adolescent report; black boxes represent parent report.

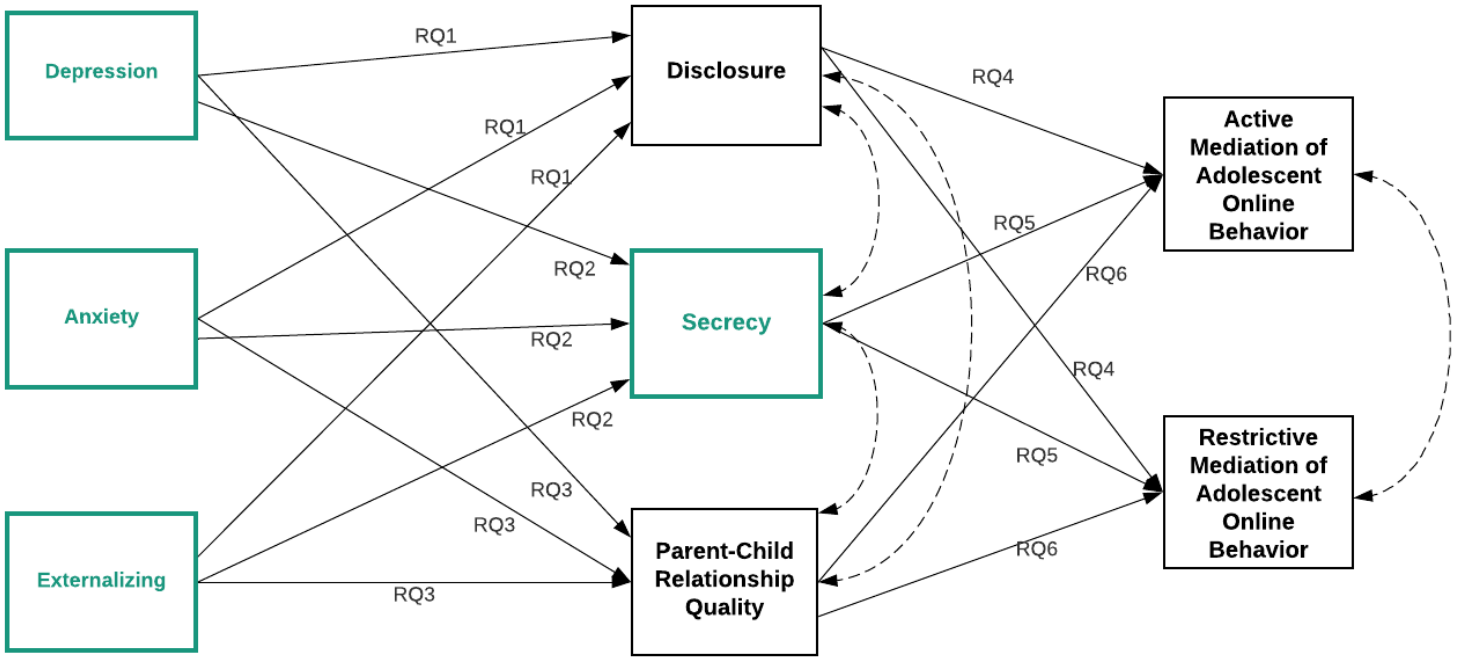

Figure 2. Path model for study one, research questions 1, 2, 3, 4, 5, and 6. Green boxes represent adolescent report; black boxes represent parent report. Numbers next to the pathways indicate the associated research questions. Parent/adolescent age and gender were controlled for research questions 3, 5, and 6.

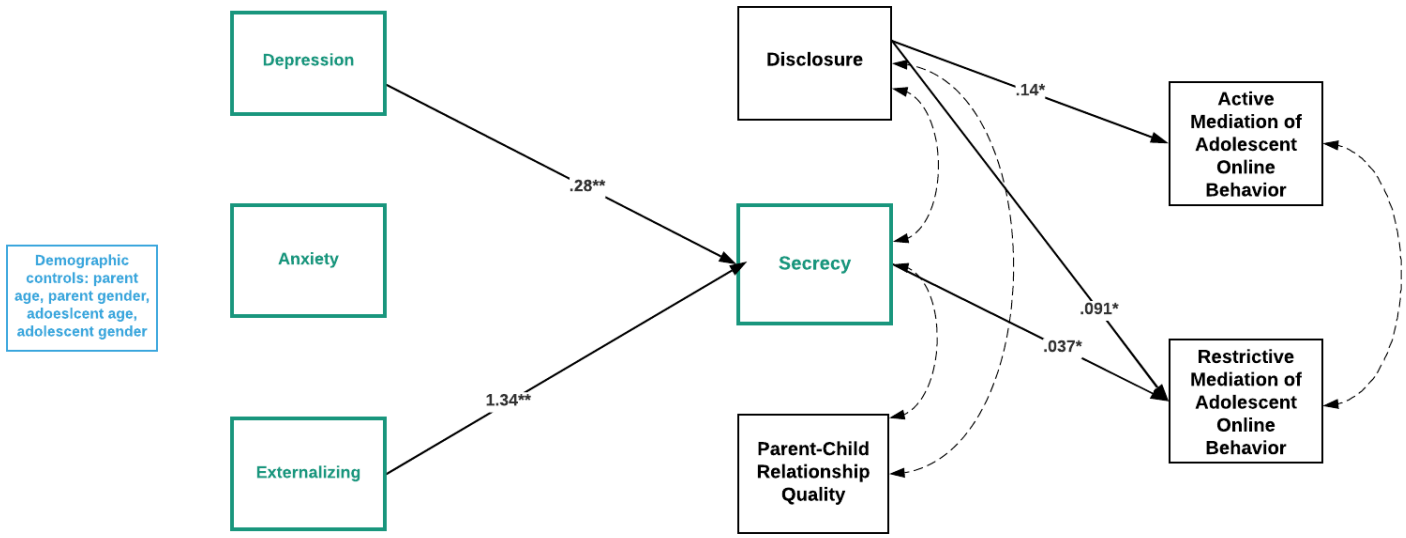

Figure 3. Associations between adolescent depression, anxiety, externalizing, adolescent disclosure, adolescent secrecy, parent-child relationship quality, active mediation, and restrictive mediation. *p<.05*, **p<.001. Only significant pathways are drawn, and control pathways between parent and adolescent age and parent and adolescent gender are not drawn for parsimony (see Table 5 for pathway results).

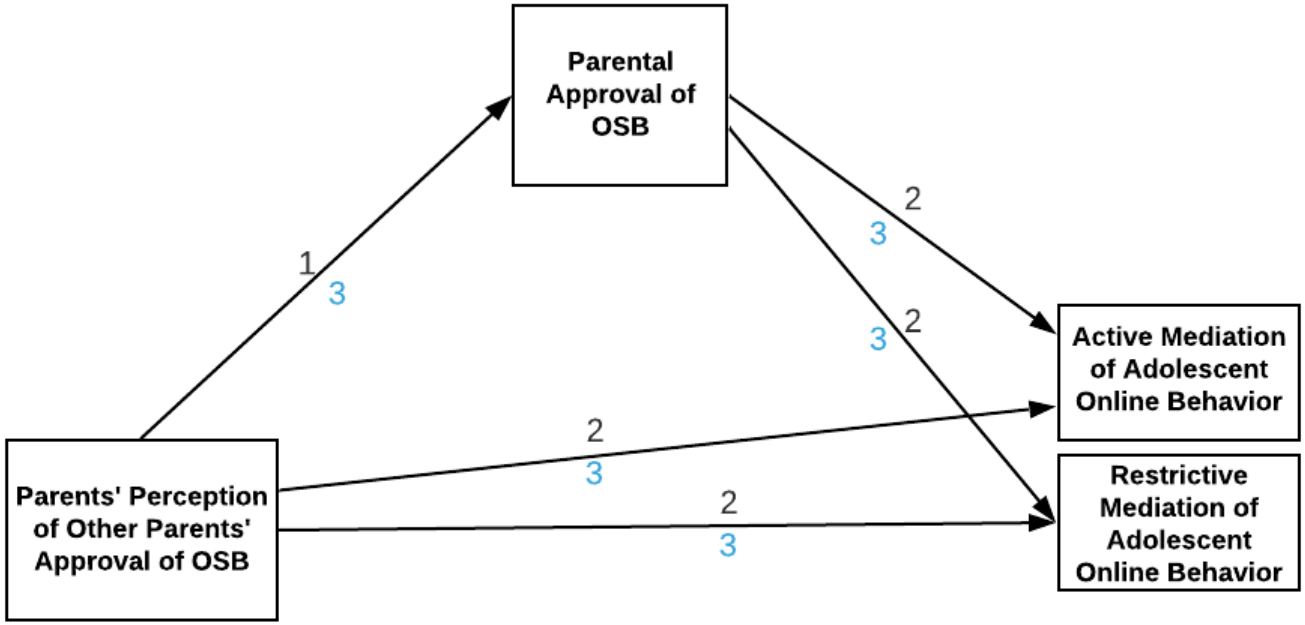

Figure 4. Path model for study two, research questions 1, 2, and 3. Black boxes represent parent report. Numbers next to the pathways indicate the associated research questions; blue text represents mediation analyses.

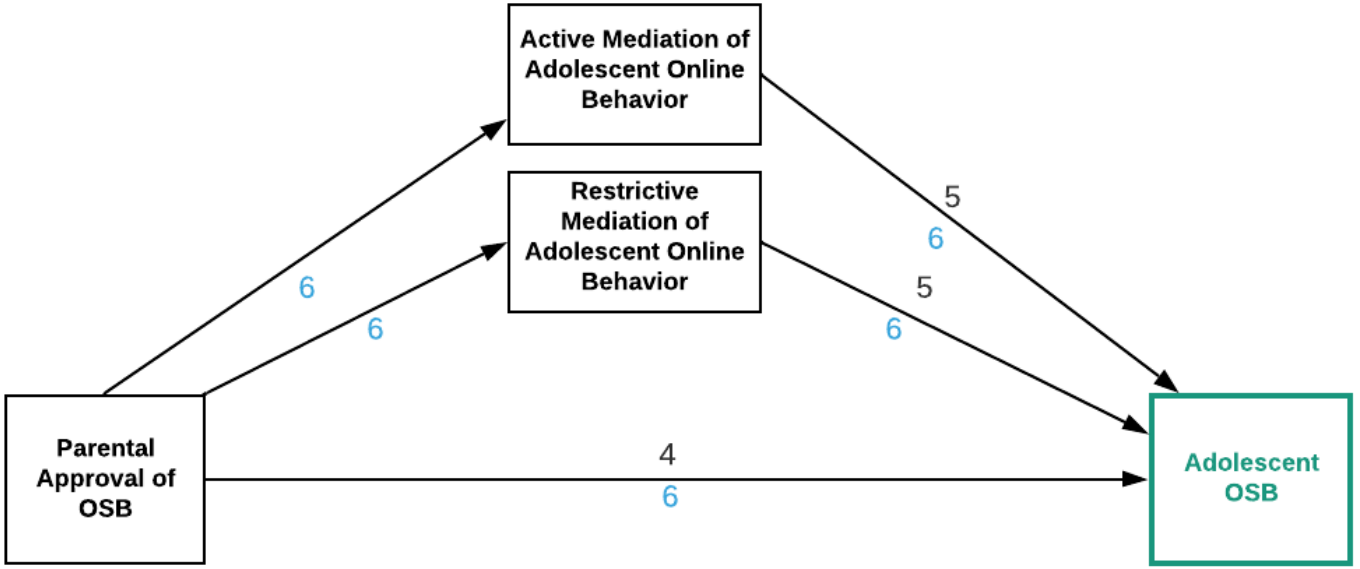

Figure 5. Path model for study two, research questions 4, 5, and 6. Green boxes represent adolescent report; black boxes represent parent report. Numbers next to the pathways indicate the associated research questions; blue text represents mediation analyses.

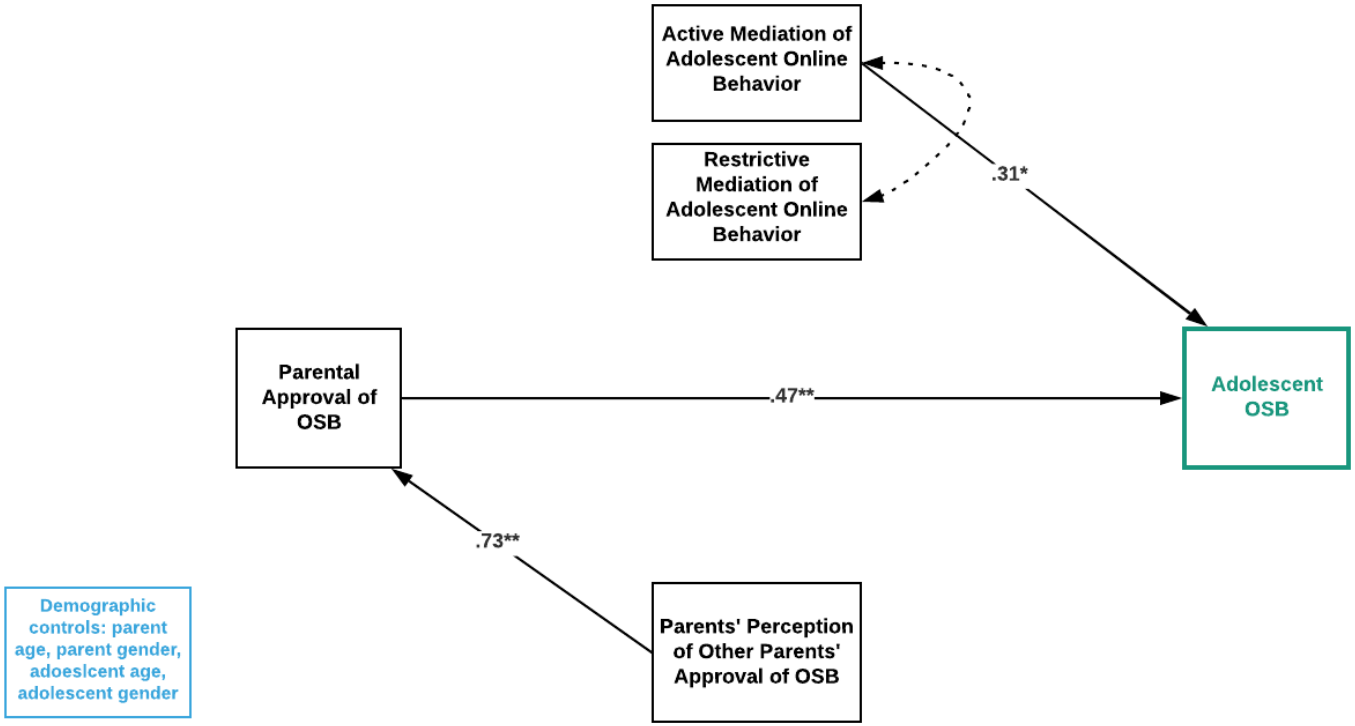

Figure 6. Associations between parents' perceptions of other parents' approval of OSB, parents' approval of OSB, active mediation, restrictive mediation, and adolescent OSB. Green boxes represent adolescent report; black boxes represent parent report. *p<.05, **p<.01. Only significant pathways are drawn, and control pathways between parent and adolescent age and parent and adolescent gender are not drawn for parsimony (see Table 7 for pathway results).