Evaluating the Relationship Between Parent-Adolescent Communication, Social Media Use, and Psychological Well-Being in Adolescents

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EVALUATING THE RELATIONSHIP BETWEEN PARENT-ADOLESCENT COMMUNICATION, SOCIAL MEDIA USE, AND PSYCHOLOGICAL WELL-BEING IN ADOLESCENTS

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The Department of Psychology

by JoHannah Smith
B.S., Mississippi State University, 2018
M.A., Louisiana State University, 2022
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Abstract

Adolescents, particularly teenage girls, use social media substantially more than any other age group (Boneva et al., 2006; Gross, 2004; Padilla-Walker et al., 2020). Greater social media use has been linked to internalizing and externalizing problems; however, specific social media behavior and the relation to internalizing and externalizing problems is unknown. Additionally, how parent-adolescent communication impacts the relationships has not been explored. This is concerning as specific social media behavior, such as ruminating with peers and general social media addiction, has been linked to adolescents’ psychological well-being. (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020). The present study seeks to address these limitations by examining the relationships between positive (i.e., enabling privacy settings, interacting with family on social media) and negative (i.e., catfishing others, hiding posts from parents) social media use and internalizing and externalizing problems. Additionally, how parent-adolescent communication impacts these relationships will be examined. Participants included 357 adolescents from the ages of 13 to 17. Moderation analyses supported the hypotheses that parent-adolescent communication moderated the relationship between positive social media use and psychological functioning. Subsequent mediation analyses supported a mediation of parent-adolescent communication between negative social media use and internalizing problems. No moderation or mediation analysis was supported between negative social media use and externalizing problems.
Introduction

Approximately 72% of Americans use social media to interact with their social network as well as create and share content. Adolescents spend more time accessing social media than any other age group (Boneva et al., 2006; Gross, 2004; Subrahmanyam et al., 2008). However, little is known about their social media usage, especially in relation to internalizing and externalizing concerns. Because of this, the relationship between adolescents’ engagement in positive (i.e., enabling privacy settings, talking to parents about social media content, blocking inappropriate accounts/content) and negative (i.e., hiding personal posts from parents, having separate accounts, having a public account) social media behavior and psychological well-being (i.e., internalizing and externalizing problems) is unknown. Researchers have found that family social networking (i.e., interacting with family on social media sites) is associated with decreased internalizing problems, though other specific positive social media behaviors have not been explored (Coyne et al., 2014).

The relationship between family social networking and externalizing problems, with the exception of aggression, has not been examined. Parent-adolescent communication has been associated with less internalizing and externalizing problems and negative social media behavior (Katz et al., 2019; Padilla-Walker, 2020; Coyne et al., 2014). For general internet use, Appel et al. (2012) suggested that parent-adolescent communication serves as a protective factor from adolescents experiencing loneliness. However, determining if online parent-adolescent connection impacts the relationship between social media use and internalizing and externalizing problems has not been addressed in previous research. The current study addresses this gap in the literature by exploring how positive and negative social media use is related to internalizing and externalizing problems as well as the influence parent-adolescent communication plays in
moderating this relationship. The following provides a review of the literature on adolescent social media use, internalizing and externalizing problems, and parent-adolescent communication.

**Review of Social Media Use in Adolescents and Their Parents**

Adolescents use many different social media platforms to engage with their social network. Specifically, Gramlich (2019) found that most adolescents in the United States use YouTube (85%), Instagram (72%), and Snapchat (69%). Facebook is not preferred by adolescents as it is seen as a complex platform, a site for older generations, and contains intrusive advertisements (Throuvala et al., 2019). Social networking sites have different uses for adolescents. Instagram, for example, is mainly for picture-sharing of their “ideal life” and inspires adolescents’ interests (Throuvala et al., 2019). Snapchat was reported by adolescents to be used for their “inner circle” and everyday moments. YouTube, on the other hand, is used for watching videos (Throuvala et al., 2019). Overall, teenage girls tend to use social media more often than teenage boys (Padilla-Walker et al., 2020).

In general, adolescents view social media as a primary way to maintain contact with others and to combat their boredom (Vaterlaus & Tulane, 2015; Throuvala et al., 2019). On the other hand, parents use social media to accomplish tasks, such as monitoring their children or asking their social network for advice (Vaterlaus & Tulane, 2015). Mothers and fathers typically use social media in similar ways, but parents under the age of 40 and who are college graduates are more likely to use social media than other parents (Madden et al., 2012). Of the parents that use social media, they mainly use it to communicate with their teenagers, their teenagers’ friends, and their teenagers’ friends’ parents (Doty & Dworkin, 2014). Parents do use social
media outside of monitoring their adolescent to interact with their social network, such as responding to good and bad news, receiving emotional support, responding and asking questions, and learning useful information (Duggan et al., 2015).

Social Media Concerns and Outcomes

Despite social media’s utility, it causes some concern for both parents and adolescents. Parents reported interest in keeping their teenagers “safe, secure, and happy” online in focus groups. Specific topics of interest include explicit content, cyber harassment, predators, and overuse of technology (Stanley et al., 2017). Parents report unfamiliarity in monitoring their adolescents’ technology use, and they have expressed concern in minimizing negative reactions from their adolescent when they engage in different monitoring techniques (Stanley et al., 2017). Further, one third of parents surveyed by Stanley et al. (2017) reported an interest in learning how to stay up-to-date with advances in technology, including social media. Some parents may use fewer, if any, monitoring techniques, due to their limited knowledge of the technology or the consequences of problematic technology use (Stanley et al., 2017). Despite this, parents of younger adolescents aged 12 to 13 and higher-income parents are more concerned with their teenagers interacting with strangers or being tracked by advertisers (Madden et al., 2012). Black/African American parents and middle-income parents report being concerned with their adolescents’ online reputation (Madden et al., 2012).

Focus groups examining social media usage among urban, African American youth reported concern about being “friends” with their parents on social media sites due to fear that their parents may respond negatively to their posts or invade their privacy (Racz et al., 2017). Privacy from parents has been documented in several studies examining adolescent social media
usage. Teenagers’ concern over maintaining privacy was positively related to the amount they spent online (Moscardelli & Divine, 2007). Further, the amount of time spent online was positively related to disclosure of personal information. Therefore, teenager’s privacy concerns were not associated with amount of their disclosure of personal information (Shin & Kang, 2015).

**Family Social Networking**

About 80% of parents and teenagers “friend” each other on social media (Madden et al., 2012). In fact, teenagers from the age of 13 to 17 are more likely to send friend requests to their parents than from the age of 18 to 24 (Burke et al., 2012). Daughters and their parents send equivalent amounts of posts to each other whereas sons receive more posts from their parents than they send (Burke et al., 2012). Along with “friending” their adolescent on social media sites, parents that have a higher income, younger adolescents, and are Caucasian are more likely to set up privacy settings on their adolescent’s social media sites (Madden et al., 2012). A third of parents have helped their adolescent with privacy settings, and over half of parents have talked to their adolescent about concerns of something posted on their account (Madden et al., 2012).

Family social networking is associated with better outcomes for teenagers when compared to social media use without parental monitoring. For instance, high levels of social media use by adolescents without parental monitoring was related to increased delinquency, internalizing problems, and aggression and decreased parent-child connection (Coyne et al., 2014). Additionally, adolescents’ social networking, in general, was negatively associated with parent-child connection and positively associated with adolescents’ internalizing problems, relational aggression, and delinquency (Coyne et al., 2014). Therefore, family social networking
is important and has been shown to have a positive relationship with parent-child connection and a negative relationship with adolescent delinquency. When parent-child connection is greater, the adolescent is more likely to have higher prosocial behavior toward their family and less relational aggression, internalizing problems, and delinquency (Coyne et al., 2014).

**Internalizing and Externalizing Problems in Adolescents**

Internalizing problems have been associated with social media use in recent literature with most studies comparing the relationship between depression and social media use. Teenage girls who have higher social media usage have been shown to have increased self-harm and depression and lower self-esteem. In fact, every thirty minutes of screen time was related to an increase in depressive symptoms (Barthorpe, 2020). A recent meta-analysis found that social media use is related to depression; however, in these studies, depression was measured by a one- or two-item survey. More comprehensive measures should be used in future studies (Sarmiento et al., 2020). Further studies found that social media addiction is related to depression and higher level of parent-adolescent conflict (Sarmiento et al., 2020; White-Gosselin & Poulin, 2022). Internalizing problems, in general, have been shown to mediate the relationship between social media addiction and parent-adolescent relationship quality (White-Gosselin & Poulin, 2022).

Other studies have found that what adolescents do on social media is perceived to be as impactful as social media utilization on their mental health (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020). For example, adolescents who report more problematic use (e.g., social media addiction) are more likely to endorse symptoms of anxiety or depression (Watson et al., 2022). Internet use, in general, has not been found to be related to internalizing problems.
(Padilla-Walker, 2020). This is likely because adolescents often compare their worst moments to others’ best moments on social media whereas general internet use does not have as many opportunities for teenagers to compare themselves to others (Tandoc et al., 2015).

Most adolescents’ post about their day-to-day lives on their social media pages, including how they feel. Ehrenreich and Underwood (2016) found that adolescents who repeatedly discuss their problems with peers on Facebook were at increased risk of anxiety and depression overtime. Adolescents with internalizing symptoms may use social media to ruminate with peers, and when their posted content is acknowledged, posting negative content may be reinforced (Ehrenreich & Underwood, 2016). Ehrenreich and Underwood (2016) found some differences in teenage boys versus girls regarding their interactions with peers on Facebook. Specifically, girls received more positive comments than boys regardless of the type of post (i.e., positive or negative affect). Additionally, the number of posts by male youth did not predict comments with more positive or negative affect from their peers, and their posts, regardless of the posts’ affect, were found to be largely ignored by their peers. On the other hand, teenage girls with increased internalizing problems post more often about their somatic complaints, requests for support, and content with negative affect, which was not found in boys (Ehrenreich & Underwood, 2016). Girls may post more about their problems as it is a way they can co-ruminate with their peers, leading to increased depression and internalizing symptoms across their social network (Kramer et al., 2014). As mentioned previously, teenagers use Facebook the least, now preferring Instagram, YouTube, and Snapchat more (Throuvala et al., 2019). It is unknown whether this is seen in other social media platforms as well, especially considering social media sites like Instagram are used primarily for picture sharing.
There are mixed findings on the relationships between externalizing problems and social media use. Regardless, externalizing problems are not as well researched as internalizing problems in relation to social media use. This could be because, unlike internalizing problems, externalizing problems do not seem to have as strong of a relationship with frequent social media use, except when examining those with comorbid internalizing and externalizing problems (Riehm et al., 2019). However, other studies find that teens with behavior problems might seek out social media sites due to the freedom to interact with others, often anonymously. Social media can also be a “safe” outlet for their misbehavior (Mikami et al., 2010). When emerging adults (i.e., ages 18 to 24) self-reported childhood conduct disorder symptoms, Katz (2019) found that greater conduct disorder symptoms in childhood were associated with greater social media use as emerging adults. When these emerging adults reported greater conduct disorder symptoms before the age of 15, their daily social media use as emerging adults was even greater. When discussing externalizing problems, previous research often addresses this in terms of problematic social media use, such as cyberbullying. Examining how parenting practices impact externalizing problems is further discussed later in the review of the literature.

**Parental Monitoring**

Parents often engage in parental mediation techniques to monitor their children’s use of technology (Vaterlaus et al., 2014). The literature uses the term “parental mediation;” however, we prefer the term “parental monitoring,” which is the term we will use throughout the rest of the present study. Monitoring techniques reported by parents include active and restrictive monitoring and are later defined. It is important to note that parents who are inconsistent in their monitoring of internet use, such as setting rules and not enforcing them, are more likely to have adolescents who are involved in cyberbullying (Katz et al., 2019).
Active Monitoring and Parent-Adolescent Communication. Active monitoring refers to parents’ efforts to educate or discuss technology with their children. Parents can also use active monitoring techniques to monitor their teenager’s technology use and content, such as checking text messages and internet history (Vaterlaus et al., 2014). Parent-adolescent communication, as used in active monitoring techniques, has positive outcomes for adolescents’ adjustment. Positive parent-adolescent communication has been found to be associated with a decreased likelihood the adolescent develops an internet addiction (Wang et al., 2018). Frequent maternal communication was associated with lower cyber victimization for adolescents (Ozdemir, 2014). When adolescents have an open communication with their mother about their internet use, adolescents partake in safer internet use and are more likely to accept their mother’s authority; this is not true for fathers, perhaps due to how they rear their children (Symons et al., 2020). When parents discuss the hazards of internet use with their teenager, their adolescent is more concerned about social media privacy when compared to rule-setting (i.e., restrictive monitoring; Moscardelli & Divine, 2007). This is not seen in teenagers who reject their parents’ rules in other contexts (Symons et al., 2020). Parents that use active monitoring techniques have teenagers that use less problematic general media, including social media use. There was not a significant relationship shown in restrictive monitoring techniques and problematic use (Fam et al., 2022).

Restrictive Monitoring. Restrictive monitoring refers to parents’ restrictions and rules about technology (Vaterlaus et al., 2014). Some examples include blocking text messaging, using internet filters, limiting time spent on devices, and not allowing access to certain applications. Restrictive monitoring is typically used by parents once the child starts to use technology in problematic ways (i.e., too much time spent watching television, accessing inappropriate content,
etc.). To combat their problematic use, parents often increase their monitoring of social media use and implement rules and restriction of technology (Brito et al., 2017). Technology is often still allowed; however, as it can be an effective “babysitter” as well as contribute to family time through enjoying a movie or game together (Brito et al., 2017).

More parental monitoring and control of social media often leads to an increase in adolescents’ internalizing problems (Padilla-Walker, 2020). When parents are more controlling, teenagers tend to use more social media to escape and express themselves. Due to their parents’ controlling nature, adolescents are more likely to cyberbully others and are speculated to have poor parent-adolescent communication (Katz et al., 2019; Padilla-Walker, 2020). Possibly due to this poor communication with their parents, teenagers who are not accepting of their parents’ rules on their internet use tend to spend more time on social media (Symons et al., 2020). When teenagers are more accepting of their parents’ rules, they have less contact with strangers on social media (Symons et al., 2020).

Unlike active monitoring, parents sometimes engage in restrictive monitoring without their children’s knowledge. When parents participate in technology along with their teenagers, such as by watching movies together or “following” each other on social media sites, some parental monitoring strategies could go unnoticed (Vaterlaus et al., 2014).

**Parental Differences in Monitoring.** There are some slight differences in the monitoring provided by mothers versus fathers. Fathers provide smaller amounts of both restrictive and active monitoring. Mothers, on the other hand, have more conversations with their adolescent than do fathers (Warren, 2017). However, most research has focused on parental monitoring strategies employed by mothers and overlooks monitoring that fathers utilize.
Parents tend to use different monitoring techniques, depending on their background and their children’s age. For example, parents of older adolescents generally have fewer rules, less internet monitoring software, and check websites less often than parents of younger children. Fathers check websites their children access more often than mothers, regardless of age (Wang et al., 2005). Higher income families seem to restrict media less than low-income families, possibly because high income parents can afford multiple devices which could be harder to monitor (Padilla-Walker et al., 2012). Highly religious parents tend to be more restrictive as media content may not reflect their values (Padilla-Walker et al., 2012). Also, parents who use smartphones frequently were less likely to monitor their children’s smartphone use, but parents who believe smartphone addiction had serious consequences were more likely to engage in restrictive and active monitoring (Hwang & Jeong, 2015).

Adolescent Social Media Use Inventory

Although previous research has suggested that what adolescents do on social media is as vital as the amount of time spent, there is limited research that examines what, specifically, adolescents do on social media and how that impacts their psychological wellbeing (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020). This could be, in part, due to the lack of empirically-derived measures that examine social media behavior. Recently, the Adolescent Social Media Use Inventory self-report and parent-report was developed in the hopes of filling this gap in the literature. Adolescents and parents both reported on the adolescents’ behavior on social media sites. From this study, social media was divided into “positive” and “negative” use, divided further into five factors. Though the specific factor loadings differ, both the parent- and self-report measure the same themes (Smith, 2022).
In the Adolescent Social Media Use Inventory, positive social media use refers to adolescents’ social media use behavior specific to themes of safety, family interactions, entertainment, and friend interactions. In the self-report, positive social media use is specifically captured in the *Positive Social Media Use* factor (i.e., playing games on social media, using social media for entertainment purposes, or talking to friends on social media) and *Online Family Interactions and Safety* factor (i.e., commenting on family’s posts, changing social media passwords, and telling parents about specific social media sites). In the parent-report, positive social media use is captured in the *Positive Social Media Use* factor (i.e., playing games with friends, using social media for entertainment purposes, and commenting on friend’s posts), the *Social Media Safety* factor (i.e., reading terms and conditions on social media sites, telling parents about new social media sites, and accessing parent-approved content), and the *Online Family Interactions* factor (i.e., commenting on parents’ posts, posting pictures of self with family, and the parent “following” their adolescent on social media; Smith, 2022).

Negative social media use refers to adolescents’ social media behavior that is related to themes of stranger interactions, safety, deception and addiction of social media, and risky and cyber-aggressive behavior. Specifically, in the self-report, the following factors measure negative social media use: *Social Media Misconduct* (i.e., hacking into someone else’s account, sending a mean message to someone, and spreading secrets about someone on social media), *Social Media Addiction and Deception* (i.e., becoming distressed when not able to use social media, hiding a social media account from a parent, and lying about social media use), and *Online Interactions with Strangers* (i.e., making friends with strangers online, having a public social media account, and accepting a “friend” or follow request from strangers). In the parent-report, negative social media use was measured by the *Social Media Addiction and Deception*
factor (i.e., adolescents lying to parents about social media use, adolescent being unable to reduce their use, and decrease in grades due to social media use) and the *Inappropriate Social Media Interactions* factor (i.e., “catfishing” others, fighting with strangers on social media, and telling strangers personal information; Smith, 2022).

**Present Study**

Previous research has suggested that what adolescents do on social media is as impactful as the frequency of social media use in impacting their mental health (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020). However, there is a gap in the literature examining how specific social media use behaviors are related to internalizing and externalizing behaviors as most research focuses on the problematic behaviors alone without considering positive use, perhaps due to the lack of empirically-derived instruments. Social media sites and applications change rapidly, especially in how they are used by teenagers, which warrants frequent exploration of usage trends.

Further, internalizing problems have been well researched in relation to social media use. Previous research has examined the mechanisms that contribute to and maintain internalizing problems, namely depression, such as teenagers comparing themselves to others or participating in rumination with their social network (Tandoc et al., 2015; Ehrenreich & Underwood, 2016). While identifying these mechanisms is important, it is, again, unknown if more prosocial behaviors are important in decreasing the effect of social media use on internalizing problems. For externalizing problems, the relationship to social media use, positive or negative, is largely unknown. Finally, how parent-adolescent communication, one facet of active monitoring, moderates the relationship between social media use and internalizing and externalizing
problems has also not been explored, though previous research has showed a relationship with both social media use and psychological wellbeing (i.e., internalizing and externalizing problems; Katz et al., 2019; Padilla-Walker, 2020; Coyne et al., 2014; Wang et al., 2018; Ozdemir, 2014). Additionally, Appel et al. (2012) suggested that parent-adolescent communication serves as a protective factor from adolescents experiencing loneliness when examining general internet use. Given this relationship, positive parent-adolescent communication could serve as a protective factor for adolescents with internalizing or externalizing problems from participating in negative social media use. Likewise, parent-adolescent communication could increase the likelihood that teenagers use social media positively.

The present study seeks to fill these gaps by examining the relationship between positive (i.e., playing games with friends, accessing parent-approved content, and “friending/following” their parents on social media) and negative social media use (i.e., fighting with others on social media, lying to parents about social media use, and telling strangers personal information) and internalizing and externalizing problems. The relationship between social media use and parent-adolescent communication will also be explored. Further, the present study will examine how, if at all, parent-adolescent communication moderates these relationships.

**Hypotheses**

1. **Hypothesis 1:** Positive social media use will be negatively related to internalizing and externalizing problems. In this way, teenagers that use social media positively will have less internalizing and externalizing problems. Teenagers who have less positive social media use will experience greater internalizing and externalizing problems.
2. Hypothesis 2: Negative social media use will be positively related to internalizing and externalizing problems. Adolescents who have more negative social media use will have greater internalizing and externalizing problems. Alternatively, adolescents with less negative social media use will have less internalizing and externalizing problems.

3. Hypothesis 3: Parent-adolescent communication will moderate the relationships between negative social media use and internalizing and externalizing problems. Specifically, it is expected that parent-adolescent communication will serve as a protective or risk factor in that as parent-adolescent communication is more positive, the relationship between negative social media use and psychological well-being will weaken. In reverse, if parent-adolescent communication is poor, the relationship between negative social media use and psychological well-being will strengthen.

4. Hypothesis 4: Parent-adolescent communication will moderate the relationships between positive social media use and internalizing and externalizing problems. Positive parent-adolescent communication will strengthen the relationships between positive social media use and psychological well-being. If parent-adolescent communication is negative, the relationship between positive social media use and psychological well-being will weaken.
Method

Participants

Participants included 370 adolescents from an existing database that developed a questionnaire on adolescent social media use. Participants were recruited through siblings of Louisiana State University undergraduates as well as through a local school. Participants were adolescents from the ages of 13 to 17. Thirteen participants were removed after failing two or more assumptions tests (e.g., Mahalanobis Distance, Cook’s D, and leverage), resulting in a final participant pool of 357. Table 1 depicts demographic characteristics of the participants.

Table 1. Demographic Characteristics

<table>
<thead>
<tr>
<th>Frequency (N=357)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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<tr>
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<tr>
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<tr>
<td>Prefer not to say</td>
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<tr>
<td><strong>Age</strong></td>
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</tr>
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<tr>
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</tr>
<tr>
<td>Hispanic or Latino</td>
<td>41</td>
</tr>
</tbody>
</table>


An a priori power analysis was conducted using the software package, G*Power (Erdfelder et al., 1996). The recommended medium effect size ($f^2 = .29$), alpha level ($p<.05$), a desired power of .80, and maximum number of predictor variables in the models (i.e., 6) was used (Cohen, 1992). Estimated population effect size ($d=.58$ or $f^2=.29$) was determined based on a review of the literature, specifically research focusing on examining whether parental control moderates the relationship between child and parent anxiety (van der Bruggen et al., 2008). The resulting power analysis suggested a minimum sample size of 54 participants. A post hoc analysis was also conducted using G*Power to examine achieved power in the final sample of 357 participants. The final power is .99, suggesting low likelihood of Type II error, using the same parameters as above.

Measures

**Demographic Questionnaire.** A demographic questionnaire was completed by the adolescents that assessed demographic characteristics, such as age, race, and ethnicity.

**Parent-Adolescent Communication Scale.** The Parent-Adolescent Communication Scale is a 10-item self-report questionnaire used to measure the adolescent’s perception of parent-adolescent communication quality. Each item is rated on a scale of 1 (“strongly disagree”) to 4 (“strongly agree”). Higher scores indicate better parent-adolescent communication. The measure demonstrated good reliability ($\alpha=.85$; Forehand et al., 1997). In the present study, the measure demonstrated acceptable reliability ($\alpha=.80$). See Appendix E for specific items.

**Youth Internalizing Problems Screener (YIPS).** The Youth Internalizing Problems Screener (YIPS) is a 10-item self-report scale used to measure adolescent’s internalizing problems, such as depression and anxiety. Items were initially developed around common
themes in anxiety and depression disorder diagnoses. Items are scored from 1 (“almost never”) to 4 (“almost always”). Higher scores indicate greater internalizing problems. A cutoff score of 30 is recommended to screen for internalizing problems. Cronbach’s alpha was .84 (Renshaw & Cook, 2018). In the present study, the measure demonstrated excellent reliability (α = .91). See Appendix F for specific items.

**Youth Externalizing Problem Screener (YEPS).** The Youth Externalizing Problems Screener (YEPS) is a 10-item self-report scale that measures externalizing problems in adolescents. The YEPS was developed to complement the YIPS. Initial items were developed around common themes in attention-deficit/hyperactivity disorder and disruptive, impulse-control, and conduct disorders symptoms. Items are scored from 1 (“almost never”) to 4 (“almost always”). Higher scores indicate greater externalizing problems. A cutoff score of 30 is recommended to screen for externalizing problems. Cronbach’s alpha was .84 (Renshaw & Cook, 2019). In the present study, the measure demonstrated good reliability (α = .87). See Appendix G for specific items.

**Adolescent Social Media Use Inventory.** The Adolescent Social Media Use Inventory is a 59-item self-report measure that assesses adolescent’s social media use behaviors. Items are rated from 1 (“strongly disagree”) to 4 (“strongly agree”). For this measure, social media is divided into “positive” and “negative” social media use, divided further into five factors. Positive social media refers to safety, family interactions, entertainment, and friend interactions on social media sites and is represented by the Positive Social Media Use (α = .87) and Online Family Interactions and Safety (α = .89) factors. Negative social media use refers to stranger interactions, safety, deception and addiction of social media, and risky and cyber-aggressive behavior on social media sites and is represented by the Social Media Misconduct (α = .94), Social Media
Addiction and Deception (α=.93), and Online Interactions with Strangers (α=.74) factors. Each factor is scored separately, with higher scores indicating greater behavior in that factor. For example, higher scores on the Online Family Interactions subscale indicate greater positive online interactions between adolescents and parents. Cronbach’s alpha for each factor ranged from adequate to excellent on the self-report (α= .94, .93, .89, .87, and .74; Smith, 2022). Concurrent and construct validity was established.

Procedure

After obtaining Institutional Review Board (IRB) approval, parents of adolescents provided parental permission and adolescent assent was gathered. Participants then completed the measures online through Qualtrics.

Data Analysis

The data were first examined to detect and eliminate any outliers that failed two or more assumptions checks. Descriptive statistics were then conducted on the remaining data to calculate summary statistics on all demographic (i.e., age, gender, race, ethnicity) and explored variables (i.e., internalizing and externalizing problems, positive and negative social media use, parent-adolescent communication). Bivariate correlational analyses were used to examine relationships between the predictor and demographic or outcome variables. Variables were then mean-centered to reduce multi-collinearity. To examine the impact of parent-adolescent communication on adolescents’ social media use and psychological functioning, multiple hierarchical regression analyses were conducted using SPSS Version 29 (IBM Corp, 2023). Multiple hierarchical regressions are entered sequentially in steps, looking for significant changes in variance between each step and in the last step, a significant interaction term,
suggesting moderation. In step one, significant demographic variables are included to control potential effects on the outcome variable (i.e., internalizing or externalizing problems). The next step adds the independent variable (i.e., positive or negative social media use) to the model. The third step adds parent-adolescent communication. Finally, the last step adds an interaction term by multiplying the independent and moderator variables (i.e., positive/negative social media use x parent-adolescent communication). If the interaction is significant (step four), then a moderation exists. If the interaction is not significant but all prior steps were significant, a mediation is suggested, with further testing. For each significant moderation or mediation, simple slope plots (moderation) or direct effects (mediation) will be graphed.

A moderation analysis was initially chosen over a mediation analysis as mediation analyses are used to explain relationships (i.e., two variables are related due to a mediating variable). Moderation analyses, on the other hand, are useful in determining if the relationship between two variables is impacted by a third variable, which allows researchers to go beyond correlational relationships and test in what conditions this relationship occurs. Specifically, moderation analyses will determine how parent-adolescent communication impacts the relationship between the type of social media use and internalizing or externalizing problems.
Results

Data Quality Analyses

Preliminary analyses were first conducted to assure data quality, such as parametric assumption testing and missing data evaluation. No participants were excluded from the final analyses due to randomly missing data greater than five percent in the responses (Montelpare et al., 2020). Assumption checks included Malahanobis Distance, Cook’s D, and an assessment of leverage (Olive, 2012). Thirteen participants failed two or more of the assumption tests, resulting in removal of these participants in subsequent analyses. Data assumptions (normality, linearity, homogeneity, and homoscedasticity) was tested, and data was normally distributed. Therefore, further participants were not removed. The final participant pool was 357 adolescent participants.

Descriptive Statistics

Table 2 displays explored variable sample means, standard deviations, and ranges. Higher scores represent a higher degree of the variable. As shown below, on average, adolescent participants reported having more positive social media use and better communication with their parents than negative social media use and poor parent-adolescent communication. Items endorsed by many adolescents included: “I use social media to relax or have fun,” “I post pictures of me and my friends on social media,” “I comment on my friends’ posts,” “My parents know which social media sites I use,” and “I send pictures, videos, or other content to my friends on social media.” On average, participants reported more internalizing behaviors than externalizing behaviors.
Table 2. Sample Means and Standard Deviations for Explored Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
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<td>26</td>
<td>88</td>
<td>59.12</td>
<td>9.92</td>
</tr>
<tr>
<td>Negative Social Media Use</td>
<td>38</td>
<td>123</td>
<td>61.44</td>
<td>14.45</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>9</td>
<td>36</td>
<td>17.93</td>
<td>5.76</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>9</td>
<td>27</td>
<td>14.65</td>
<td>4.37</td>
</tr>
<tr>
<td>Parent-Adolescent</td>
<td>8</td>
<td>35</td>
<td>26.85</td>
<td>4.10</td>
</tr>
</tbody>
</table>

**Correlational Analyses**

The relationships between variables were assessed by bivariate correlations analyses. As shown in Table 3, ethnicity was not significantly correlated with any of the predictor variables whereas age was significantly correlated with externalizing problems, gender was significantly correlated with internalizing problems, and race was significantly correlated with parent-adolescent communication. Gender and race were significantly positively correlated with both positive social media use and negative social media use, with the exception of race and negative social media use, which was negatively correlated.
Table 3. Correlations Between Demographic and Predictor Variables

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Gender</th>
<th>Race</th>
<th>Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Social Media Use</td>
<td>.07</td>
<td>.14**</td>
<td>.18**</td>
<td>.05</td>
</tr>
<tr>
<td>Negative Social Media Use</td>
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<td>-.13*</td>
<td>-.03</td>
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<tr>
<td>Internalizing Problems</td>
<td>.09</td>
<td>.24**</td>
<td>-.05</td>
<td>.07</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>-.13*</td>
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<tr>
<td>Parent-Adolescent Communication</td>
<td>-.07</td>
<td>-.07</td>
<td>.19**</td>
<td>-.00</td>
</tr>
</tbody>
</table>

Note. * = p<0.05, ** = p<0.01

As seen in Table 4, all predictor variables were significantly correlated with one another. Consistent with Hypothesis 1 (i.e., positive social media use will be negatively related to internalizing and externalizing problems), positive social media use was significantly negatively correlated with internalizing problems (r= -.10, p<.05) and externalizing (r= -.24, p<.001) problems. Further, negative social media use was significantly correlated to greater internalizing (r= .43, p<.01) and externalizing (r= .50, p<.01) problems, which is consistent with Hypothesis 2 (i.e., negative social media use will be positively related to internalizing and externalizing problems). This suggests that the more an adolescent engages in positive social media use, they also experience less internalizing and externalizing problems. On the other hand, negative social media use was associated with more internalizing and externalizing problems.
Table 4. Correlations Between Outcome and Predictor Variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
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<td>-</td>
<td>-.24**</td>
<td>-.10*</td>
<td>-.24**</td>
<td>.45**</td>
</tr>
<tr>
<td>2. Negative Social Media Use</td>
<td>-.24**</td>
<td>-</td>
<td>.43**</td>
<td>.50**</td>
<td>-.31**</td>
</tr>
<tr>
<td>3. Internalizing Problems</td>
<td>-.10*</td>
<td>.43**</td>
<td>-</td>
<td>.53**</td>
<td>-.27**</td>
</tr>
<tr>
<td>4. Externalizing Problems</td>
<td>-.24**</td>
<td>.50**</td>
<td>.53**</td>
<td>-</td>
<td>-.31**</td>
</tr>
<tr>
<td>5. Parent-Adolescent Communication</td>
<td>.45**</td>
<td>-.31**</td>
<td>-.27**</td>
<td>-.31**</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. * = p<0.05, ** = p<0.01

Hierarchical Regression Analysis

To test Hypotheses 3 and 4, which predicts that parent-adolescent communication will moderate the relationships between social media use and psychological functioning, hierarchical regression analyses were evaluated. First, significant demographic variables, as shown in Table 3, were controlled for in each respective model. Predictor and moderator variables were centered to reduce multicollinearity. Before entering the moderator variable (i.e., parent-adolescent communication), hierarchical regressions were conducted on the demographic covariates, independent variables, and dependent variables to determine if the type of social media use (positive or negative use) predicted psychological functioning (internalizing and externalizing problems). Positive social media use significantly predicted less internalizing problems, $F(1,329)=5.93$, p<0.05, and less externalizing problems $F(1,319)=14.54$, p<.001. Similarly, negative social media use significantly predicted more internalizing problems, $F(1,329)=78.88$, p<0.001, and more externalizing problems, $F(1,319)=112.42$, p<0.001.

Subsequent hierarchical regressions for outcome variables included the moderating variable. Interaction terms were then created by multiplying centered predictor variables by the
centered moderating variable. If there is no significant interaction, models were further examined for potential mediating effects (Baron & Kenny, 1986). If there is a significant interaction, moderation analyses were conducted with further simple slope analyses.

**Model One: Positive Social Media Use and Internalizing Problems**

Table 5 describes the hierarchical regression, shown in steps, with significant demographic variables (i.e., gender and race), positive social media use, proposed moderator variable (i.e., parent-adolescent communication), and interaction variable for Model One. For this model, internalizing problems served as an outcome variable.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th></th>
<th>Step 2</th>
<th></th>
<th>Step 3</th>
<th></th>
<th>Step 4</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Sig</td>
<td>β</td>
<td>Sig</td>
<td>β</td>
<td>Sig</td>
<td>β</td>
<td>Sig</td>
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<td>Gender</td>
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<td>.24</td>
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<td>.21</td>
<td>&lt;.001**</td>
<td>.20</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>Race</td>
<td>-.05</td>
<td>.39</td>
<td>-.03</td>
<td>.64</td>
<td>.00</td>
<td>.95</td>
<td>.00</td>
<td>.99</td>
</tr>
<tr>
<td>Positive SMU</td>
<td>-</td>
<td>-</td>
<td>-.13</td>
<td>.02*</td>
<td>-.01</td>
<td>.89</td>
<td>.66</td>
<td>.03*</td>
</tr>
<tr>
<td>Communication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.26</td>
<td>&lt;.001**</td>
<td>.29</td>
<td>.25</td>
</tr>
<tr>
<td>SMU x Communication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-1.05</td>
<td>.03*</td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td>.05</td>
<td>&lt;.001**</td>
<td>.02</td>
<td>.02*</td>
<td>.05</td>
<td>&lt;.001**</td>
<td>.01</td>
<td>.03*</td>
</tr>
</tbody>
</table>

Note: * = p<0.05, ** = p<0.01, SMA= Social Media Use, Communication= Parent-Adolescent Communication

Significant demographic variables (i.e., gender, race) were controlled for in step one. However, in this model, only gender was significant, $F(2, 330)=8.73, p<.001$, explaining 5% of the variance. Next, positive social media use was entered and was significant, $F(1,329)=5.93,
p<.05, explaining 2% of the variance. On the third step, the moderator term (parent-adolescent communication) was entered and was significant, $F(1,328)=18.19$, $p<.001$, explaining 5% of the variance. Finally, the interaction term was entered (positive social media use x parent-adolescent communication) and was significant, $F(1,327)=5.00$, $p<.05$, explaining 1% of the variance. As the interaction term is significant, parent-adolescent communication likely serves as a moderator between positive social media use and internalizing problems. Figure 1 depicts Model One where parent-adolescent communication serves as a moderator between positive social media use and internalizing problems.

Figure 1. Moderating relationship of parent-adolescent communication on positive social media use and internalizing problems

To further test if parent-adolescent communication serves as a moderator for Model One, follow-up analyses were conducted with the PROCESS version 3 macro for SPSS to confirm if parent-adolescent communication serves as a moderator (Hayes, 2022). First, Johnson-Neyman significance testing was conducted (Johnson & Fay, 1950). Two values were highlighted at $p=.05$ significance. Values below 17.07 (2.10% of all scores), $t(327)=1.97$, $p=.05$, $b=.14$, and above 31.93 (9.91% of all scores), $t(327)= -1.97$, $p=.05$, $b=-.07$, were included in the
significance regions, accounting for 12% of all values. This suggests that only higher or lower levels of positive parent-adolescent communication significantly impacts the relationship between positive social media use and internalizing problems. Simple slopes were then graphed and are shown in Figure 2.

**Figure 2. Simple slopes for model one**

**Model Two: Positive Social Media Use and Externalizing Problems**

For Model Two, Table 6 describes the hierarchical regression with the significant demographic variables (i.e., gender, race, and age), positive social media use, proposed moderator variable (i.e., parent-adolescent communication), and interaction variable. For this model, externalizing problems served as the outcome variable.
Table 6. Impact of parent-adolescent communication on positive social media use and externalizing problems

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Sig</td>
<td>β</td>
<td>Sig</td>
</tr>
<tr>
<td>Gender</td>
<td>.00</td>
<td>.95</td>
<td>.03</td>
<td>.56</td>
</tr>
<tr>
<td>Race</td>
<td>-.09</td>
<td>.12</td>
<td>-.05</td>
<td>.37</td>
</tr>
<tr>
<td>Age</td>
<td>-.14</td>
<td>.01*</td>
<td>-.13</td>
<td>.02*</td>
</tr>
<tr>
<td>Positive SMU</td>
<td>-</td>
<td>-</td>
<td>-.21</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>Communication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SMU x Communication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

R²                    | .03    | .04*   | .04    | <.001**| .05    | <.001**| .02    | .01*   |

Note: * = p<0.05, ** = p<0.01, SMA= Social Media Use, Communication= Parent-Adolescent Communication

Significant demographic variables (i.e., gender, race, age) were controlled for in step one. However, in this model, only age was significant, $F(3, 320)=2.90$, p<.05, explaining 3% of the variance. Next, positive social media use was entered and was significant, $F(1,319)=14.54$, p<.001, explaining 4% of the variance. On the third step, the moderator term (parent-adolescent communication) was entered and was significant, $F(1,318)=19.65$, p<.001, explaining 5% of the variance. Finally, the interaction term was entered (positive social media use x parent-adolescent communication) and was significant, $F(1,317)=6.08$, p<.05, explaining 2% of the variance. As the interaction term is significant, parent-adolescent communication likely serves as a moderator between positive social media use and externalizing problems. Figure 3 depicts Model Two where parent-adolescent communications serves as a moderator between positive social media use and externalizing problems.
To further test if parent-adolescent communication serves as a moderator for Model Two, follow-up analyses were conducted with the PROCESS version 3 macro for SPSS to confirm in parent-adolescent communication serves as a moderator (Hayes, 2022). First, Johnson-Neyman significance testing was conducted (Johnson & Fay, 1950). One value was highlighted at p=.05 significance. Values above 1.84, $t(317)=-1.97$, $p=.05$, $b=-.05$, were included in the significance regions, accounting for 37.65% of all values. This suggests that only higher levels of positive parent-adolescent communication significantly impact the relationship between positive social media use and externalizing problems. Simple slopes were then graphed and are shown in Figure 4.
Figure 4. Simple slopes for model two

**Model Three: Negative Social Media Use and Internalizing Problems**

For model three, Table 7 describes the hierarchical regression with the significant demographic variables (i.e., gender and race), negative social media use, proposed moderator variable (i.e., parent-adolescent communication), and interaction variable. For this model, internalizing problems served as the outcome variable.
Table 7. Impact of parent-adolescent communication on negative social media use and internalizing problems

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Sig</td>
<td>β</td>
<td>Sig</td>
</tr>
<tr>
<td>Gender</td>
<td>.22</td>
<td>&lt;.001**</td>
<td>.19</td>
<td>&lt;.001**</td>
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<tr>
<td>Race</td>
<td>-.05</td>
<td>.39</td>
<td>.01</td>
<td>.77</td>
</tr>
<tr>
<td>Negative SMU</td>
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<td>-</td>
<td>.43</td>
<td>&lt;.001**</td>
</tr>
<tr>
<td>Communication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SMU x Communication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R²</td>
<td>.05</td>
<td>&lt;.001**</td>
<td>.18</td>
<td>&lt;.001**</td>
</tr>
</tbody>
</table>

Note: * = p<0.05, ** = p<0.01, SMA= Social Media Use, Communication= Parent-Adolescent Communication

Significant demographic variables (i.e., gender, race) were controlled for in step one. However, in this model, only gender was significant, $F(2, 330)=8.73, \ p<.001$, explaining 5% of the variance. Next, negative social media use was entered and was significant, $F(1,329)=78.88, \ p<.001$, explaining 18% of the variance. On the third step, the moderator term (parent-adolescent communication) was entered and was significant, $F(1,328)=8.44, \ p<.01$, explaining 2% of the variance. Finally, the interaction term was entered (negative social media use x parent-adolescent communication) and was not significant, $F(1,327)=.01, \ p>.05$, explaining 0% of the variance. As the interaction term is not significant, parent-adolescent communication may serve as a mediator instead of a moderator.
Figure 5 describes the mediating relationship of parent-adolescent communication on negative social media use and internalizing problems.

Figure 5 depicts the mediation model with parent-adolescent communication serving as a significant mediator between negative social media use and internalizing problems. The direct effect of positive parent-adolescent communication on adolescent negative social media use (path a) was negative and statistically significant, $b = -0.06$, $p < 0.001$, suggesting that adolescents that report greater positive communication with their parents also experience using social media less negatively. The direct effect of parent-adolescent communication on internalizing problems (path b) was negative and significant, $b = -0.21$, $p < 0.001$. This suggests that for each unit of perceived positive parent-adolescent communication, there is a decrease in internalizing problems. Finally, the direct effect of negative social media use on internalizing problems (path $c'$) was positive and significant, $b = 0.13$, $p < 0.001$, suggesting that greater negative social media use increases internalizing problems. The predictors accounted for 25% of the variance in internalizing problems ($R^2 = 0.2532$). The indirect effect, which examines the effect of the mediator
through the model, is statistically significant (.01), 95% CI (.005, .026). The indirect total, and direct effects are all significant, which indicates that the relationship between negative social media use and internalizing problems are significant with and without the mediator (parent-adolescent communication). This suggests partial mediation. Further testing of the coefficients through the mediator were significant ($Z=2.80, p<.01$) through the Aronian version of the Sobel test.

**Model Four: Negative Social Media Use and Externalizing Problems**

For Model Four, Table 8 describes the hierarchical regression with the significant demographic variables (i.e., gender, race, and age), negative social media use, proposed moderator variable (i.e., parent-adolescent communication), and interaction variable. For this model, externalizing problems served as the outcome variable.
Table 8. Impact of parent-adolescent communication on negative social media use and externalizing problems

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th></th>
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<tr>
<td></td>
<td>β</td>
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<td>β</td>
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<td>Sig</td>
<td>β</td>
<td>Sig</td>
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<td>.95</td>
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<td>.33</td>
<td>-.05</td>
<td>.34</td>
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<td>.86</td>
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<td>.01*</td>
<td>-.17</td>
<td>&lt;.001**</td>
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<td>&lt;.001**</td>
<td>-.18</td>
<td>&lt;.001**</td>
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<td>.03</td>
<td>&lt;.001**</td>
<td>.00</td>
<td>.70</td>
</tr>
</tbody>
</table>

Note: * = p<0.05, ** = p<0.01, SMA= Social Media Use, Communication= Parent-Adolescent Communication

Significant demographic variables (i.e., gender, race, age) were controlled for in step one. However, in this model, no demographic variables were significant. Next, negative social media use was entered and was significant, $F(1,319)=112.42$, $p<.001$, explaining 25% of the variance. On the third step, the moderator term (parent-adolescent communication) was entered and was significant, $F(1,318)=12.77$, $p<.001$, explaining 3% of the variance. Finally, the interaction term was entered (negative social media use x parent-adolescent communication) and was not significant, $F(1,317)=.15$, $p>.05$, explaining 0% of the variance. As the interaction term is not significant, parent-adolescent communication may serve as a mediator instead of a moderator.
Figure 6 depicts the mediation model with parent-adolescent communication serving as a significant mediator between negative social media use and externalizing problems. The direct effect of positive parent-adolescent communication on adolescent negative social media use (path a) was negative and statistically significant, $b=-0.06$, $p<0.001$, suggesting that adolescents that report greater positive communication with their parents also utilize social media less negatively as shown in Model 3. The direct effect of parent-adolescent communication on internalizing problems (path b) was negative and significant, $b=-0.19$, $p<0.01$. This suggests that for each unit of perceived positive parent-adolescent communication, there is a decrease in externalizing problems. Finally, the direct effect of negative social media use on externalizing problems (path c') was positive and significant, $b=0.11$, $p<0.001$, suggesting that greater negative social media use is associated with more externalizing problems. The predictors accounted for 31\% of the variance in internalizing problems ($R^2=0.3079$). The indirect effect, which examines the effect of the mediator through the model, is statistically significant ($0.01$), 95\% CI ($0.004$, $0.01$).
The indirect, total, and direct effects are all significant, which indicates that the relationship between negative social media use and externalizing problems are significant with and without the mediator (parent-adolescent communication). This suggests partial mediation. Further testing of the coefficients through the mediator were not significant ($Z=.06, p>.05$) through the Aronian version of the Sobel test, which confirms no significant mediation.
Discussion

The present study examined the impact of parent-adolescent communication on social media use and psychological functioning. Participants consisted of 357 adolescents from the ages of 13 to 17. Majority of participants were female (64.1%), age seventeen (56.0%), and White (69.6%). Previous research has examined the role of frequent social media use on mental health, namely depression (Tandoc et al., 2015; Ehrenreich & Underwood, 2016). However, recent studies have suggested that an adolescents’ specific behaviors while accessing social media may be as salient as the frequency of use, though the impact of specific behaviors on psychological functioning is unknown (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020).

Therefore, the present study had four hypotheses: (1) Teenagers with more positive social media use will experience less internalizing and externalizing problems; (2) Teenagers with more negative social media use will experience greater internalizing and externalizing problems; (3) parent-adolescent communication will serve as a protective factor of psychological well-being when adolescents engage in negative social media use; (4) parent-adolescent communication will strengthen the relationship between positive social media and psychological well-being.

The first proposed hypothesis was supported. Positive social media use was negatively correlated with internalizing problems. This suggests that as teenagers use social media in a more positive way, such as by playing games with friends, interacting with their family, or having a private account, they also have less internalizing problems. Previous research has examined the link between social media use and internalizing problems (Watson et al., 2022; Padilla-Walker, 2020). However, this research often looks at more negative social media use, such as using social media for extensive periods of time or engaging in cyberbullying. Therefore, the present study’s finding supports previous research that has suggested that specific social media behaviors are as
impactful as how long someone spends on social media sites (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020). Future studies should continue to examine how social media use, when used pro-socially, has a relationship with internalizing problems. Positive social media use was also found to be negatively correlated with externalizing problems. This suggests that as teenagers use social media positively, they also experience less externalizing problems. As with internalizing problems, research that examines the relationship between social media use and externalizing problems typically looks at problematic use (Riehm et al., 2019). Current research is also mixed concerning whether or not externalizing problems has a relationship with social media use (Riehm et al., 2019; Mikami et al., 2010; Katz, 2019). The present study’s finding supports existing research that shows a relationship between the two (Mikami et al., 2010; Katz, 2019). In fact, there was a greater relationship shown than when compared to internalizing problems.

Hypothesis two was also supported. Negative social media use was shown to be correlated with internalizing problems. This suggests that as an adolescent uses social media in a more negative way (e.g., having a public account, hiding social media sites from parents, cyberbullying others), they also experience more internalizing problems, consistent with previous research (Watson et al., 2022). Similarly, negative social media use was correlated with externalizing problems, suggesting that teenagers who use social media in a more negative way also experience more externalizing problems. This is consistent with previous research that has found a relationship between externalizing problems and social media use (Mikami et al., 2010; Katz, 2019). In fact, there was a greater relationship shown than when compared to internalizing problems.
Hypothesis three was partially supported. Parent-adolescent communication was found to moderate the relationship between positive social media use and psychological well-being (e.g., internalizing and externalizing problems). Further testing using Johnson-Neyman significance found that only higher and lower levels of parent-adolescent communication has a significant impact on the relationship between positive social media use and internalizing problems. When comparing simple slopes, high parent-adolescent communication had the largest influence in decreasing internalizing problems, followed by average and then low communication levels, consistent with previous research that has found high levels of communication with adolescents leads to safer internet use (Symons et al., 2020; Moscardelli & Divine, 2007; Wang et al., 2018). This suggests that higher parent-adolescent communication provides more protection from internalizing problems. Regardless of parent-adolescent communication levels, the more social media is used positively, the less internalizing problems that teenagers report, which is consistent with previous research suggesting that specific social media behaviors are just as important as the amount of time social media is used (Sarmiento et al., 2020; Shensa et al., 2017; Nesi et al., 2020). Additionally, social media addiction, a form of negative social media use, has been shown to be related to depression and higher levels of parent-adolescent conflict, which supports these findings (Sarmiento et al., 2020; White-Gosselin & Poulin, 2022).

For externalizing problems, when comparing simple slopes, high parent-adolescent communication had the highest slope, followed by average and then low communication levels. This suggests that higher parent-adolescent communication provides more protection from internalizing problems. Johnson-Neyman testing indicated that only higher levels of parent-adolescent communication significantly impacted the relationship. Though externalizing
problems decrease as positive social media use increases, the interaction between high positive social media use and high parent-adolescent communication is statistically significant. This suggests that only high levels of parent-adolescent communication significantly impact the relationship between positive social media use and externalizing problems in that externalizing problems decrease as parent-adolescent communication increases. This is consistent with previous studies that have found that when teenagers have an open communication with their mothers, teens engage in safer internet use (Symons et al., 2020). These findings also provide support for previous research that suggest a relationship between externalizing problems and general social media use (Mikami et al., 2010; Katz, 2019). Overall, teens had lower externalizing problems (M=14.65) than internalizing problems (M=17.93), on average. Cut-off scores of 30 are recommended to screen for internalizing and externalizing problems, suggesting that on average participants experienced subclinical levels of internalizing and externalizing problems. Future studies should focus on recruiting participants with clinical levels of internalizing and externalizing problems.

Hypothesis four was unsupported but still yielded notable findings. For both Models Three and Four, a moderation was not found. Follow-up analyses found a significant mediation for Model Three but not Model Four. For Model Three, a partial mediation was found as the indirect, total, and direct effects were all significant, and the relationship between negative social media use and internalizing problems are significant with and without the mediator (parent-adolescent communication). This suggests that there is a relationship between internalizing problems and negative social media use with and without parent-adolescent communication. However, parent-adolescent communication decreases internalizing problems. This is consistent with previous research that has found that parent-adolescent communication has been associated
with less internalizing problems and negative social media behavior, including increased concern about online privacy (Katz et al., 2019; Padilla-Walker, 2020; Coyne et al., 2014; Moscardelli & Divine, 2007). Further, internalizing problems have also been found to mediate the relationship between social media addiction and parent-adolescent relationship quality (White-Gosselin & Poulin, 2022). For externalizing problems, however, no significant mediation was found. Again, this provides evidence for a greater relationship between externalizing problems and social media that has largely been debated in previous research.

In examining the findings, it is important to note that parent-adolescent communication, as defined in this study, may occur online or in-person. Therefore, a teenager with high parent-adolescent communication may not engage in family social networking where they are “friends” with their parent on social media sites. Previous studies have shown that family social networking is associated with better outcomes, such as lower levels of delinquency, aggression, and internalizing problems. These gains may not have been fully actualized in the current sample given that parents of older teens are less likely to utilize both active and restrictive parental monitoring techniques, including talking about privacy or the dangers of social media (Madden et al., 2012).

Previous research has examined the relationships between general or specific negative social media use (e.g., cyberbullying, addiction) and psychological well-being (Padilla-Walker, 2020; Sarmineto et al., 2020; Shensa et al., 2017; Nesi et al., 2020). However, there has been a gap in the research that examines specific social media behaviors, both positive and negative, and the relationship with psychological well-being. There has also been a gap in the literature that examines the impact that parent-adolescent communication can have on the relationship
between social media use and psychological well-being. Therefore, the present study lays the groundwork for future research to examine specific social media behaviors and how these behaviors can impact teenagers’ well-being.

Limitations and Future Directions

The present study had several limitations. First, the current study relied on correlational analyses. As such, causal relationships cannot be determined. Future studies should not rely on correlational analyses, which can include longitudinal studies or randomized control trials. Most participants were female (64.1%), age seventeen (56.0%) and White (69.6%). Therefore, some findings may not be as generalizable to males, younger adolescents, or minority teens. Future studies should recruit younger teens and minorities. Another limitation includes the parent and adolescent participants completing the questionnaire online. Therefore, parent participants could have watched their adolescents’ responses, and therefore, could have led to inaccurate responses from the adolescents. Future research should have the parent and adolescent participants take the measures separately. Next, on average, participants experienced subclinical levels of internalizing and externalizing problems. This could impact the findings as clinical levels of internalizing and externalizing problems in both teens or their parents may impact the results. Additionally, internalizing and externalizing problems were broadly defined. Future studies may benefit from having specific diagnoses to study (e.g., social anxiety disorder versus generalized anxiety disorder) as specific diagnoses may impact the results. Previous studies have largely studied depression; therefore, future studies would benefit from examining anxiety and externalizing diagnoses as well. Lastly, social media research is relatively new, and future findings may or may not provide additional support for the present study’s results. Future studies should continue to examine the role of social media in teenagers’ lives.
Appendix A. Consent Form

1. **Study Title:** Development and Initial Validation of the Adolescent Social Media Use Inventory

2. **Purpose of the Study and Study Procedures:** The purpose of the study is to develop and validate the Adolescent Social Media Use Inventory on an adolescent and parent population. This survey will entail a demographic questionnaire and measures of parent-adolescent communication, internalizing and externalizing problems, and online privacy and self-monitoring behavior (if applicable). The survey will take approximately 1 hour to 1½ hours to complete.

3. **Risks/Discomforts:** One possible risk to participating in the study is psychological distress from reporting parent-adolescent communication quality. The study is voluntary so if participants feel distressed, they are able to discontinue the study at any time. Each participant will be given information about resources in the community at the end of the study.

4. **Benefits:** There are no direct benefits to the participant.

5. **Contacts:** For questions regarding this study, investigators may be reached Monday-Friday 8 am – 4:30 pm by email or phone at 225-578-4113:
   - JoHannah Smith (jsmi635@gmail.com)
   - Dr. Mary Lou Kelley, PhD (mkelley@lsu.edu)
   - Evan Threeton (ethree1@lsu.edu)
   - Madeleine Hansen (mhanse8@lsu.edu)
   - Alexandra Herman (aherma5@lsu.edu)

6. **Performance Sites:** Online. Recruitment will take place through local schools and through a local library.

7. **Number of Participants:** 700
8. **Participants:** This study will include 350 adolescents and 350 parents who can read/write English and live in the United States.

9. **Privacy:** All the information collected is solely for the purpose of research and will be kept private and confidential. Names or other identifying information will not be tied to responses, and only trained research staff will handle the data. Once data collection is complete, the data will be analyzed and a paper will be complete. Names will not be associated with the paper and in publications that result from the data.

10. **Financial Information:** There is no cost participating in this study.

11. **Participation is Voluntary/Right to Refuse:** Participation in this study is not mandatory, and participants can withdraw from the study at any time. There are no penalties for discontinuing participation.

12. **Signatures:**
The study has been discussed with me, and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. For injury or illness, call your physician. If I have questions about subjects’ rights or concerns, I can contact Alex Cohen, Chairman, LSU Institutional Review Board, 225-578-8692, irb@lsu.edu, or www.lsu.edu/research. I agree to participate in the study described above and acknowledge the researchers’ obligation to provide me with a copy of this consent form if signed by me.

Subject Signature: _____________________________ Date: ____________________
Appendix B. Parental Permission Form

1. **Study Title:** Development and Initial Validation of the Adolescent Social Media Use Inventory

2. **Purpose:** The purpose of this study is to develop and initially validate a novel measure of negative and positive social media use in adolescents. Adolescent participants will answer a survey that will ask questions about their positive and negative social media use and, if applicable, their communication with their parent, internalizing and externalizing problems, and online privacy and self-monitoring behaviors.

3. **Risks:** There are no known risks.

4. **Benefits:** The study may identify negative or positive social media behaviors that adolescents employ as well as identify possible strategies that parents can employ to minimize their adolescents’ negative social media behavior.

5. **Investigators:** For questions regarding this study, investigators may be reached Monday – Friday 8 am – 4:30 pm by email or by phone at 225-578-4113:
   
   JoHannah Smith (jsmi635@lsu.edu)

   Dr. Mary Lou Kelley, PhD (mkelley@lsu.edu)

   Evan Threeton (ethree1@lsu.edu)

   Madeleine Hansen (mhanse8@lsu.edu)

   Alexandra Herman (aherma5@lsu.edu)

6. **Performance Site:** Online, with recruitment through local schools and through undergraduates at Louisiana State University

7. **Number of Subjects:** 350 parent participants and 350 adolescent participants
8. **Inclusion Criteria:** Adolescents aged 13-17 who also use social media and one of their parents.

9. **Exclusion Criteria:** Those who do not meet the age requirements or who do not use social media.

10. **Right to Refuse:** Participation is voluntary, and an adolescent will become part of the study only if both adolescent and parent agree to the adolescent’s participation. At any time, either the subject may withdraw from the study or the subject’s parent may withdraw from the study without penalty or loss of any benefit to which they might otherwise be entitled.

11. **Privacy:** Results of this study may be published, but no names or identifying information will be included for publication. Subject identity will remain confidential unless disclosure is required by law.

12. **Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects for participation.

13. **Signatures:**

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigator. For injury or illness, call your physician. If I have questions about subject’s rights or other concerns, I can contact Alex Cohen, Chairman, Institutional Review Board, (225)578-8692, irb@lsu.edu, or www.lsu.edu/reserach. I will allow my child to participate in the study described above and acknowledge the investigator’s obligation to provide me with a signed copy of this consent form.

Parent’s Signature: ______________________________ Date: _________________
Appendix C. Adolescent Assent Form

I, _______________________________, agree to be in a study that will develop a new measure of negative and positive social media use in adolescents. I will answer questions about my social media use as well as my communication with my parents, internalizing or externalizing problems, and online privacy. I can decide to stop being in the study at any time without getting into trouble.

Adolescent Signature: ___________________________ Age: _____ Date: _________

Witness: _______________________________ Date: _____________
Appendix D. Adolescent Demographic Questionnaire

What is your age?

- 13
- 14
- 15
- 16
- 17

What gender do you identify with?

- Male
- Female
- Non-binary/Other
- Prefer not to say

Race (select all that apply)

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White or Caucasian

Ethnicity

- Hispanic
- Not Hispanic
Appendix E. Parent-Adolescent Communication Scale – Adolescent Version

Answer the following questions based on your relationship with your parent. The word “parent” can mean your biological parent, adoptive parent, grandparent, or guardian. Rate the questions on the following scale: strongly disagree, somewhat disagree, somewhat agree, and strongly agree.

1. My parent and I can talk about almost anything.
2. My parent sometimes doesn’t listen to me.
3. I can tell my parent how I feel about everything.
4. I am satisfied with how my parent and I talk together.
5. I am careful about what I say to my parent.
6. When I ask a question, I get honest answers from my parent.
7. There are topics I avoid discussing with my parent.
8. My parent knows how to talk to me.
9. I find it easy to discuss problems with my parents.
10. It is easy for me to discuss all my true feelings with my parent.
Appendix F. Youth Externalizing Problems Screener – Adolescent Version

Answer the following questions about how you think, feel, and do with the following scale:

almost never, sometimes, often, and almost always.

1. I lose my temper and get angry with other people
2. I have a hard time sitting still when other people want me to.
3. I fight and argue with other people.
4. I break rules whenever I feel like it.
5. I talk a lot and interrupt others when they are talking.
6. I say or do mean things to hurt other people.
7. I have a hard time focusing on things that are important.
8. I like to annoy people or make them upset.
9. I get distracted by the little things happening around me.
10. I choose not to follow directions and don’t listen to adults.
Appendix G. Youth Internalizing Problems Screener – Adolescent Version

Answer the following questions about how you think, feel, and do with the following scale:

almost never, sometimes, often, and almost always.

1. I feel nervous or afraid.
2. I feel very tired and drained of energy.
3. I find it hard to relax and settle down.
4. I get bothered by things that didn’t bother me before.
5. I have uncomfortable and tense feelings in my body.
6. I feel moody or grumpy.
7. I feel like I’m going to panic or think I might lose control.
8. I do not really enjoy doing anything anymore.
9. I feel worthless or lonely when I’m around other people.
10. I have headaches, stomachaches, or other pains.
Appendix H. Adolescent Social Media Use Inventory – Adolescent Version

Answer the following questions based on how frequently you engage in the following behaviors on social media. Social media sites include the following: Facebook, Instagram, Snapchat, YouTube, Tumblr, Twitter, or Tik Tok. This does not include other online sites or chatrooms.

| I have met with someone in person that I met on social media without telling my parents. | Strongly Disagree | Disagree | Agree | Strongly Agree |
| I have made friends with someone I met on social media. |                  |         |       |               |
| I talk to people whom I do not know in real life on social media. |                  |         |       |               |
| I have a public social media account. |                  |         |       |               |
| I accept friend or follow requests from people I do not personally know. |                  |         |       |               |
| I send pictures, videos, or other content to my friends on social media. |                  |         |       |               |
| I use social media to talk to my friends. |                  |         |       |               |
| I comment on my friend’s posts. |                  |         |       |               |
| I post pictures of me and my friends on social media. |                  |         |       |               |
| I use social media to make plans with friends. |                  |         |       |               |
| I use social media for entertainment purposes by watching videos, finding funny content, or combating my boredom. |                  |         |       |               |
| I use social media to relax or have fun. |                  |         |       |               |
| I use social media to play games with my friends. |                  |         |       |               |
| I comment on my parents’ posts. |                  |         |       |               |
| I tag my parents in my personal posts. |                  |         |       |               |
| Whenever I receive a negative comment on a personal post, I tell my parents. |                  |         |       |               |
| My parent comments on my posts. |                  |         |       |               |
| When someone I do not know sends me a private message, I tell my parents. |                  |         |       |               |
| I tell or ask my parents whenever I use a new social media platform. |                  |         |       |               |
| I only access content my parents approve. |                  |         |       |               |
| I read social media platforms’ terms and conditions. |                  |         |       |               |

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<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tr>
<td>I post pictures of my family and me on social media.</td>
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<td>I am “friends” with or follow my parent on social media sites.</td>
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<td>I remove any personal posts that my parents do not like.</td>
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<td>I change my social media passwords.</td>
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<td>I check who has logged into my social media accounts to make sure that someone has not hacked into my account.</td>
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<td>My parents know which social media sites I use.</td>
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<td>I lie to my parents about my social media use.</td>
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<td>Whenever I try to take a break from social media, I am unable to reduce my use.</td>
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<td>When accessing a social media site from a shared computer, I delete my browsing history or use an incognito tab.</td>
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<td>I am preoccupied by social media, and I have a difficult time completing a task, such as homework and chores.</td>
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<td>I become distressed whenever I am unable to use social media.</td>
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<td>I hide posts from my parents (i.e., only make the posts visible to certain people).</td>
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<td>I delete apps from my phone before allowing my parents to see it.</td>
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<td>I have a separate account that my parents do not know about.</td>
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<td>I become angry whenever I am not allowed to use social media.</td>
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<td>I access social media platforms that my parents disapprove of away from home (e.g., school or a friend’s house or device).</td>
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<td>I use apps on my phone that hide my social media applications.</td>
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<td>I would rather spend time on social media platforms than participate in extracurricular activities, such as baseball or the drama club.</td>
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<td>My social media use has led to lower grades on homework or tests.</td>
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<td>My parent does not understand how I express myself on social media.</td>
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<td>I have used social media to spread rumors or secrets about someone.</td>
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<td>I have created a fake social media account to make fun of someone else.</td>
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<td>I have created a social media account that is dedicated to rating someone’s appearance or popularity.</td>
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<td>I have stolen someone’s password and pretended to be them online.</td>
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<td>I have pretended to be someone else or “catfished” someone else on social media.</td>
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<td>I have said mean or untrue statements about others on social media.</td>
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<td>I have hacked into someone else’s social media account.</td>
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<td>I post negative comments on stranger’s posts.</td>
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<td>I have argued with my parent through a post or comment on social media.</td>
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<td>I have argued with my parent about something they have posted on social media.</td>
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<td>I have used social media to send a mean direct message to someone else.</td>
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<td>I have gotten into trouble by my parents for accessing content on social media that they don’t approve of.</td>
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<td>I have argued with my parent about something I have posted on social media.</td>
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<td>I fight with strangers on social media.</td>
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<td>My parent embarrasses me on social media by their posts or comments.</td>
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<td>I tell people who I do not know personal information.</td>
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<td>My parent does not like that I engage in social media.</td>
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<td>My parent restricts my social media use.</td>
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Appendix I. IRB Approval Form

TO: Kelley, Mary L
LSUAM | Col of HSS | Psychology
Paul Mooney

FROM: Associate Chair, Institutional Review Board

DATE: 01-Feb-2021
RE: IRBAM-21-0028
TITLE: Development & Validation of the Adolescent Social Media Use Inventory

SUBMISSION TYPE: Initial Application
Review Type: Expedited Review
Risk Factor: Minimal
Review Date: 01-Feb-2021
Status: Approved
Approval Date: 01-Feb-2021
Approval Expiration Date: 31-Jan-2022
Re-review frequency: Annually
Number of subjects approved: 700
LSU Proposal Number:

By: Paul Mooney, Associate Chair

Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
8. **SPECIAL NOTE:** When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.

*All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at [http://www.lsu.edu/research](http://www.lsu.edu/research)*

Louisiana State University
131 David Boyd Hall
Baton Rouge, LA 70803

O 225-578-5833 F 225-578-5983

http://www.lsu.edu/research
References


Vita

JoHannah Smith received her Bachelor of Science degree in Psychology from Mississippi State University in 2018. She then received her Master of Arts degree in Psychology in 2022 from Louisiana State University. She completed her predoctoral clinical internship at the University of Texas Health Science Center in Tyler, TX in June 2024, and she anticipates graduating with her Doctor of Philosophy in Clinical Psychology in August 2024. She will be completing her postdoctoral fellowship at Texas Children's Hospital in Houston, TX. Her clinical interests include weight, pain, and anxiety management in pediatric populations in a hospital setting. Her research interests include parenting practices, social media use, and adjustment to medical diagnoses in pediatrics.