

Lying to parents and friends: A longitudinal investigation of the relation between lying,
relationship quality, and depression in late-childhood and early adolescence

by
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Abstract

Lie-telling has been suggested to increase from childhood through adolescence; however, research on how dishonesty influences other areas of functioning is limited. The goal of this thesis was to examine dishonesty separately in the context of parent-child and friendships in eight- to 14- year-old participants (Time 1). Study 1 assessed longitudinal associations between lying to parents, keeping secrets from parents, parent-child relationship quality, and depression. There was bidirectional negative association between parent-child relationship quality and keeping secrets from parents over time, and depressive symptoms were positively associated with lying to parents over time. Study 2 assessed longitudinal associations between lying to friends, friendship quality, and depression. Lying to friends was not associated with friendship quality, but depressive symptoms were positively associated with lying to friends over time. The findings across these two studies suggest that lying plays an important role in various areas of functioning during childhood and adolescence.

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Lying to parents and friends: A longitudinal investigation of the relation between lying, relationship quality, and depression in late-childhood and early adolescence

Honesty is an important aspect of trust that is expected within interpersonal relationships (Rotenberg, 1994). Furthermore, dishonesty has been shown to damage interpersonal relationships, resulting in low trust, negative emotional experiences, and even relationship termination (Jang, Smith, & Levine, 2002; McCornack & Levine, 1990; Tyler, Feldman, & Reichert, 2006). Yet, lying commonly occurs in interpersonal interactions; for example, young adults report lying in one third of their social exchanges (DePaulo & Kashy, 1998; Kashy & DePaulo, 1996). Current research on the development of lying across the lifespan using experimental, observer-report, and self-report methods suggests that lie-telling increases in childhood, peaks in late childhood to adolescence, and decreases during adulthood (Debey, Schryver, Logan, Suchotzki, & Verschuere, 2015; Evans & Lee, 2011; Lavoie, Nagar, & Talwar, 2017; Levine, Serota, Carey, & Messer, 2013; Talwar, Gordon, & Lee, 2007; Talwar & Lee, 2002). However, the majority of research has focused on childhood and adulthood, leaving adolescence underexamined. If lie-telling is indeed increasing through childhood and adolescence it is important to understand how this behaviour is related to other areas of functioning.

My thesis sought to examine self-reported lie-telling from mid-childhood to early adolescence across two longitudinal studies. The goal of the first study was to examine lying and secret-keeping in the context of the parent-child relationship and assess whether dishonesty towards parents is positively related to age from mid-childhood to early adolescence. Additionally, Study 1 examined how increased dishonesty (lying and secret-keeping) might be related to (1) parent-child relationship quality and (2) depressive symptoms over time. The

second study is the first to directly examine dishonesty within friendships. Specifically, Study 2 examined whether self-reported lying to friends would increase with age, and whether lying would be related to (1) friendship quality and (2) depression over time. My thesis will begin by discussing the current literature on the development of lie-telling behaviours from childhood through adolescence, followed by a review of the current literature that has examined the role of dishonesty in parent-child relationships, friendships, and depression.

The Development of Lie-telling

To gain a full understanding of the development of lie-telling, it is important to use both experimental and self-report methodologies, as these methods suggest somewhat different developmental trends. Experimental lab-based research has suggested that lie-telling emerges at low frequencies when children are as young as two years old (Evans & Lee, 2013; Leduc, Williams, Gomez-Garibello, & Talwar, 2017; Williams, Leduc, Crossman, & Talwar, 2017), with a rapid increase in the tendency to tell lies in early childhood followed by a decrease from late-childhood to adolescence (Evans & Lee, 2011, 2013; Evans, Xu, & Lee, 2011; Hu, Huang, Wang, Weare, & Fu, 2019; Popliger, Talwar, & Lee, 2011). Thus, experimental evidence suggests a peak in the tendency to lie during mid- to late-childhood. Additionally, the ability to lie successfully increases throughout childhood, where children and adolescents with greater social and cognitive abilities are able to better maintain their lies (Evans & Lee, 2011; Talwar & Lee, 2002, 2008; Talwar et al., 2007)

While experimental research is valuable in its ability to demonstrate the developmental trajectory of the ability to lie and the related social and cognitive skills, experimental methodologies focus on a single episode and do not provide insight into children and adolescents' rates of lie-telling in daily life. For this reason, it is important to examine children

and adolescent lie-telling through self-report research as well. Current literature assessing the frequency of daily lying during childhood has primarily utilized other-reports (by parents and teachers). On average, parents and teachers report low levels of lying during childhood (Engels, Finkenauer, & Van Kooten, 2006; Gervais, Tremblay, Desmarais-Gervais, & Vitaro, 2000; Stouthamer-Loeber & Loeber, 1986). Relatively consistently across studies, a small portion of children (less than 10%) are reported to be frequent liars, and these children often exhibit other antisocial behaviours, such as aggression (Gervais et al., 2000; Lavoie et al., 2017; Stouthamer-Loeber & Loeber, 1986). This is important to note, as parents' and teachers' reports of children's lie-telling is biased by their perception of that child, and this perception will influence the rate of lie-telling they report. Thus, certain children may not necessarily be lying more frequently, but parents and teachers may perceive greater higher lie-telling for children who are also exhibiting higher rates of other problematic behaviours.

The downfall to understanding children and adolescents' lie-telling through parent and teacher reports is the assumption that others can accurately detect children's lies. Deception detection literature has consistently shown that adults perform at chance levels (50% accurate) when detecting children's lies about a transgression, and often hold a truth bias where they are more likely to assume that children are telling the truth than lying, suggesting that they may underreport children's lie-telling (see Gongola, Scurich, & Quas, 2017 for meta-analysis). Further, while it has been suggested that parents may be more accurate in detecting lies in their own children than other children, their deception detection ability remains at chance levels, holding a greater truth bias towards their own children than others during both childhood and adolescence (Evans, Bender, & Lee, 2016; Talwar, Renaud, & Conway, 2015). Thus, parents' reports likely reflect their inability to detect lies as children and adolescents lie become

increasingly sophisticated (Evans & Lee, 2011; Talwar & Lee, 2002, 2008; Talwar et al., 2007). Additionally, parents' reports would be especially inaccurate for those who are particularly skilled at lying. Given that parents are not able to accurately detect children and adolescent's lies about a transgression, alternative methods should be considered for examining children and adolescent daily lies.

An alternative to other-reports that is being used more recently is self-report methods. To date, the self-reported frequency of lie-telling in childhood and adolescence has been examined to a limited extent in the literature. Overall, these studies suggest that adolescents lie about three to four times per day (Debey et al., 2015; Lavoie et al., 2017; Levine et al., 2013), which is significantly greater than children (Debey et al., 2015) and adults (1-2 lies per day; DePaulo & Kashy, 1998, Kashy & DePaulo, 1996; Serota, Levine, & Boster, 2010).

Taken together, the experimental, other-report, and self-report research suggests an inverted u-shape developmental pattern of lying, where lie-telling increases in childhood, peaks in late-childhood or adolescence, and decreases during adulthood. However, the experimental and self-report methods differ in the trajectory of lie-telling during late childhood and adolescence; therefore, more research is needed to understand whether lie-telling is increasing during this developmental period. Using self-report methodology is important for our understanding of lie-telling during this age because the decrease in lie-telling found during adolescence in experimental paradigms may reflect a decreased motivation to lie in a lab setting rather than a decreased tendency to lie (Evans & Lee, 2011; Hu et al., 2019). Compared to children, adolescents may be more aware that their behaviour is being monitored in a lab, be more suspicious of the experimenter, and not be as intrigued by the prizes offered to incentivise cheating and lying. Thus, experimental research on adolescence may under-represent adolescent

lie-telling. Given these limitations, it is problematic that there is a lack of self-report research in childhood and early adolescence, which would aid in our understanding of the developmental trajectory of children's dishonesty in their daily interactions. Thus, both Study 1 and Study 2 focused on mid-childhood to early adolescence to examine how self-reported lie-telling is related to age. Further, given that lie-telling has been suggested to peak during this developmental period, it is important to understand how lying may impact other areas of social functioning, such as relationship quality and depression.

Relationship Quality

To examine how dishonesty is related to relationship quality, it is necessary to first understand the changes that occur in two important relationships during childhood and adolescence: parents and friends. In early childhood, the parent-child relationship is the most important for support and intimacy. During adolescence, the parent relationship falls below others in importance as adolescents widen their social network and establish autonomy (Furman & Buhrmester, 1993; Gingo, Roded, & Turiel, 2017; Jensen, Arnett, Feldman, & Cauffman, 2004; Williams, 2003). According to the expectancy violation-realignment theory, the dynamics of the parent-child relationship become well-established during childhood due to the stable nature of parent-child interactions across time (Collins, Laursen, Mortensen, Luebker, & Ferreira, 1997). However, during adolescence these expectations are violated as adolescents begin to engage in different behaviours and hold different expectations regarding their independence and decision-making freedom. This leads to inconsistencies in actions and reactions on both sides of the relationship, resulting in increased conflict. To avoid this conflict, adolescents may employ new strategies to avoid parental knowledge of information and prevent parents from making or influencing decisions in a variety of domains (Collins et al., 1997).

Lying and secret-keeping are strategies that adolescents use to manage parental knowledge, awareness, and monitoring (Gingo et al., 2017; Smetana, Villalobos, Tasopoulos-Chan, Gettman, & Campione-Barr, 2009).

While parents often remain the primary source for relational and emotional needs, during late-childhood and adolescence other relationships also become important as adolescents develop autonomy. By adolescence there is a network of individuals that fulfill emotional, supportive, and relational needs, and friends (same-age peers) are an important connection in this network (Berndt & Perry, 1990; Furman & Buhrmester, 1992). The development of friendships provides increasing levels of intimacy and support that can help encourage positive psychological adjustment (Berndt & Keefe, 1995; Cauce, 1986). Given this, it appears to be especially important for adolescents to engage in behaviours that will encourage the positive development of friendships, and not engage in behaviours that have the potential to harm them (e.g., lying).

Despite the changes that occur, it is important for adolescents to maintain positive relationships with parents and peers, as these relationships foster a sense of social and emotional competence (Laible, 2007) and are important predictors for outcomes such as self-esteem (Kashubeck, & Christensen, 1995; Kim & Cicchetti, 2004; Thomas & Daubman, 2001). Given that both of these relationships experience significant changes during childhood and adolescence, it is critical to understand what factors might contribute to positive changes being disrupted. According to Rotenberg's interpersonal trust framework, honesty (expectation of truthful communication, lack of malicious or manipulative intent) is an integral component of forming and maintaining trust in healthy relationships (Rotenberg, 1994). Adolescents recognize the importance of trust across the different relationships they have (parents, friends, romantic relationships; Betts, Rotenberg, & Trueman, 2013; Conley, Moors, Ziegler, & Feltner, 2011;

Debnam, Howard, & Garza, 2014; Rotenberg & Boulton, 2013). Given that dishonesty directly violates the expectation of honesty, lying and secrecy both represent important behaviours to examine in the context of parent relationships and friendships, particularly during a time when these relationships change and lie-telling increases.

Dishonesty and the parent-child relationship. Research on dishonesty within the parent-child relationship has focused on understanding the extent to which adolescents use deception as a way to assert their autonomy in the context of social domain theory (Turiel, 1983, 2002). According to social domain theory, there are three core areas of behaviour. First, the conventional domain involves social regulations and expectations, as well as cultural norms such as etiquette, table manners, and social hierarchies. Second, the psychological domain involves behaviours around personal (peers, privacy), prudential (health and safety concerns), and psychological (beliefs/knowledge of the self and others) issues. Third, the moral domain involves issues like cheating, lying and stealing. The differences in the types and importance of behaviours in each category are recognized already in childhood (e.g., Helwig & Jasobedska, 2001; Smetana, 1995). For example, a person may state that lying is morally wrong, but that it might be considered acceptable if the lie is told to protect a friend.

Using the categories of social domain theory, researchers have asked adolescents about their use and justifications of dishonesty regarding behaviours that fall into the conventional (e.g., rules and norms of the home and society), personal (e.g., privacy, appearance, romantic and peer relationships), or prudential (e.g., basic needs, health and safety concerns) domains. There are a number of ways children and adolescents communicate with their parents about these issues. Many studies present participants with a number of communication options (disclosure, telling some information, avoiding the issue, lying) and ask which one they would be most likely

to use. For the current study, we expanded on this research by asking about the frequency of lie-telling and secret-keeping separately. A lie is a statement the speaker believes to be false but intends for the receiver to believe (DePaulo et al., 2003). Keeping a secret does not require the speaker to provide alternate or misleading information, but instead to withhold information that might be relevant to the conversation (Bok, 1989; Kelly, 2002). While both require concealing information, lying is distinct in the requirement for a false statement. Thus, these behaviours represent distinct behaviours that may have different relationships with developmental outcomes (Engels et al., 2006). Given these differences, examining them as separate may provide additional information as to how dishonesty influences relationships.

The primary method by which parents obtain knowledge about the behaviours in the personal and prudential domains is through adolescent self-disclosure, rather than through monitoring or requesting information (Kerr, Stattin, & Burk, 2010; Kerr, Stattin, & Trost, 1999; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). Self-disclosure is important for trust between parents and adolescents and predicts whether they engage in delinquent behaviours (Kerr et al., 2010); however, adolescents recommend or justify dishonesty across multiple domains and behaviours over self-disclosure. While they lie about behaviours in both the personal and prudential domains, they are more likely to recommend or justify dishonesty for behaviours that fall in the personal domain (Gingo et al., 2017; Rote & Smetana, 2014). Despite adolescent reports that they are most likely to lie about personal issues, the relation between adolescent lie-telling and the quality of the parent-child relationships has mainly been examined through lies about prudential behaviours (safety concerns; e.g., sexual behaviour, alcohol use; Desmond & Kraus, 2012; Jensen et al., 2004; Knox, Zusman, McGinty, & Gescheidler, 2001; Warr, 2007). For example, Jensen and colleagues (2004) asked adolescents to report how often

they lied about six prudential issues in the previous year (money, sex, dating, parties, substance use, and friends). Thirty-two to 67% of adolescents reported lying to their parents, depending on the topic, and they most often justified lying by citing their right to autonomy. Furthermore, adolescents who lie more often about these issues report lower relationships quality with their parents (Engels et al., 2006; Jensen et al., 2004). When communication is more honest, the parent-child relationship is more trusting and positive overall (Finkenauer, Engels, & Meeus, 2002; Kerr et al., 1999; Gingo et al., 2017; Finkenauer, Frijns, Engels, & Kerkhof, 2005; Smetana et al., 2009).

Generally, adolescents' endorsement and use of dishonesty (including lying), is related to poorer relationships with parents. However, our understanding of this relationship is limited due to the correlational nature of these studies. There is a lack of longitudinal work establishing a temporal order to this association. Lying may lead to poorer relationship quality because lying violates the expectation of honesty (Rotenberg, 1994). Dishonesty in relationships is correlated with poorer communication, less trust, lower responsiveness, and even termination of relationships (Finkenauer et al., 2005; Jang et al., 2002; McCornack & Levine, 1990; Sagarin, Rhoads, & Cialdini, 1998; Tyler et al., 2006). While parent-child relationships cannot be terminated, this evidence does support the hypothesis that greater lying might lead to poorer relationship quality over time. However, it is also possible that the opposite order could be true, that aspects of the parent-child relationship might predict lying over time. For example, more controlling parenting styles are related to greater endorsement of dishonesty (Gingo et al., 2017; Jensen et al., 2004; Rote & Smetana, 2014). Adolescents report considering their parents potential reactions to disclosures when deciding whether to be honest and are more likely to disclose when they receive warm, positive responses from parents (Marshall, Tilton-Weaver, &

Bosdet, 2005; Soenens et al., 2006). These associations suggest that relationship quality might predict rates of lying over time. However, the majority of this research asks about adolescents' opinions on the acceptability of dishonesty and the likelihood with which they would handle hypothetical scenarios using dishonesty rather than asking for the frequency with which they lie to their parents. Thus, this literature would benefit from using adolescents' self-reported lie-telling frequency to examine how the use of dishonesty might predict relationship quality (or vice versa) in a longitudinal framework.

Our understanding of lying and the parent-child relationship is also limited by the topics adolescents are asked about. Previous studies mainly focus on prudential lies (related to safety concerns, e.g., substance use), which is limiting by only capturing self-serving (antisocial) lies, a portion of the lies adolescents might be telling. There are other areas, such as lying about friends, social media use, one's mood and emotions, or prosocial lying (lies told for the benefit of others), which may be quite frequent during childhood and adolescence that also have an impact on the quality of relationships. Thus, asking about prudential issues specifically limits researchers' ability to accurately capture all lie-telling. Additionally, previous studies have not yet examined how lying might impact parent-child relationships in younger samples. The present study aims to address these limitations by examining how lying to parents more generally (rather than only about prudential issues) is related to the quality of the parent-child relationship over time in a sample from mid-childhood to early adolescence (8-14 years old).

There are different ways to examine dishonesty, as there are a number of behaviours that fall under the scope of this term. The two ways my thesis examined lying to parents was through telling lies and keeping secrets. As previously mentioned, lie-telling and secrecy are similar but distinct, as both require concealing information but only lying requires providing a false

statement (Bok, 1989; DePaulo et al., 2003; Kelly, 2002). Given this difference, it is possible that each behaviour may have a different influence on relationship quality. Keeping a secret does not require the speaker to provide alternate or misleading information, but to withhold information that might be relevant to the conversation, monitor speech, and inhibit behaviours or speech that would reveal the information being concealed (Bok, 1989; Kelly, 2002; Pennebaker, 1989). Research in adult samples has demonstrated that secret-keeping can have a detrimental effect on physical and psychological well-being (e.g., obsessive thoughts; Finkenauer & Rimé, 1998; Lane & Wegner, 1995; Pennebaker & Susman, 1988), suggesting that secrecy is a distinct, important construct to examine in a developmental context. In adolescence, greater disclosure (i.e., keeping fewer secrets) is associated with less problem behaviour, such as delinquency and substance use (Kerr et al., 2010; Soenens et al., 2006).

Previous research on secret-keeping often examines dishonest communication by collapsing across related types of communication, such as lie-telling, secrecy, and disclosure, to examine how overall honesty-related communication is related to different aspects of the parent-child relationship (e.g., Marshall et al., 2005; Rote & Smetana, 2014). However, there is evidence to suggest that each mode of dishonest communication should be examined as a unique construct, rather than by collapsing across them. For example, Engels and colleagues (2006) asked parents to report on their high-school aged adolescents' lying, secret-keeping, and voluntary disclosure. Adolescent lie-telling was significantly related to the quality of the parent-child relationship over and above secrecy and disclosure, suggesting that lie-telling has its own unique influence on this relationship (Engels et al., 2006). Additionally, lying and secret-keeping represent similar concepts; both involve concealing information from parents, but lying has the added layer of providing alternative or false information. Examining these concepts separately in

the same sample would allow for an understanding of what component of lie-telling might be influencing relationship quality. If the act of concealing information from parents is the harmful aspect, then secret-keeping would be predictive of relationship quality and lie-telling may not contribute over and above keeping secrets. However, if lying predicts relationship quality (or vice versa) over and above secrecy, this would suggest that the act of providing false information is more detrimental than simply concealing information. The focus on secret-keeping is even more limited than research on lie-telling in the parent-child context.

Secret-keeping rates have been suggested to be relatively stable from mid-childhood to adolescence (~3 secrets per day overall; Lavoie et al., 2017). Rather than finding a developmental pattern, girls report keeping more secrets than boys (Lavoie et al., 2017). As has been found with lie-telling, adolescents report using secrecy as a strategy for obtaining autonomy from parents (Finkenauer et al., 2002). There is limited research on secret-keeping specifically in relation to parent-child relationship quality; however, given that higher rates of self-disclosure predict positive relationships (Kerr & Stattin, 2000; Stattin & Kerr, 2000; Laird & Marrero, 2010), adolescents who report keeping more secrets from parents may also report poorer relationships. Cross-sectional associations have been established between secrecy and parent-child communication, trust, and perceived support, but longitudinal associations have not (Frijns, Finkenauer Vermulst, & Engels, 2005); however, the authors only examined secrecy as a predictor of their relational outcomes, rather than exploring bidirectional associations between secrecy and their other variables of interest. The present study sought to extend these findings by conducting a bidirectional examination of secrecy and the parent-child relationship over time to assess whether secrecy and lying are uniquely associated with the quality of the parent-child relationship.

Dishonesty and friendships. While there is some research examining adolescent dishonesty on in the context of the parent-child relationship, the other important relationship during adolescence, friends, remains unexamined. As previously mentioned, late-childhood is a time when friends begin to provide intimacy, social support, and other attachment needs, particularly for females (Furman & Buhrmester, 1992; Nickerson & Nagel, 2005). Given the importance of this relationship, it is vital to understand what behaviours may disrupt positive transitions and prevent positive relationships from being formed. Increased lie-telling may negatively impact the ability of children and adolescents to form these important social bonds.

Studies have shown that adolescents report lying more often to familiar people, such as family and friends, than to unfamiliar people (strangers, acquaintances; Debey et al., 2015; Levine et al., 2013). However, no research has looked directly at lying to friends, and how children and adolescents' lying to their friends might impact friendships over time. Given that telling a lie violates the expectation of honesty for trust, and adolescents recognize the importance of having trust in their relationships (Betts et al., 2013; Conley et al., 2011; Debnam et al., 1994), dishonesty may have severe consequences for positive friendships. While research has not yet examined lying to friends specifically, trust between peers and friends is important for a variety of outcomes. For example, Betts and colleagues (2013) assessed children's trust and trustworthiness in relation to their peers at school and found that children who were not trusted by their peers experienced greater peer victimization and social withdrawal, as well as low peer preference and reciprocal trust (i.e., the children who a low-trust individual reported having high trust with did not trust them in return). Additionally, previous research has identified that trust and intimate exchange are important indicators of both friendship quality and peer attachment (Armsden & Greenberg, 1987; Bauminger, Finzi-Dottan, Chason, & Har-Even, 2008; Parker &

Asher, 1993; Villalobos Solis, Smetana, & Comer, 2015). Given the importance of honesty for trust in positive relationships, it is important to understand the potential impact of lying on friendships.

It is important to make the distinction between peer relationships and friendships. Peers represent those of a similar age and status (Peer, n.d.). Friendships are relations with peers that are more close, intimate, and reciprocal (Sullivan, 1953). While research on trust has examined both of these contexts and identified the importance of trust in both, lies may be particularly problematic in friendships given their more intimate nature compared to peer relationships. In fact, the developmental changes that occur during childhood and adolescence suggest that lying to friends may increase. Children and adolescents increasingly desire peer approval with age, and they adjust their behaviour to gain it (Olthof & Goossens, 2008; Mayeux & Kraft, 2017); older children and adolescents may be more inclined to lie to their peers as a way of gaining social approval. For example, an adolescent may lie to a peer about having similar interests to maintain or obtain a friendship. Additionally, experimental research shows that beginning in early childhood, children understand that lies can be used for prosocial purposes, such as maintaining relationships, and are able to tell prosocial lies for relational purposes (e.g., protect someone's feelings; Popliger et al., 2011; Talwar et al., 2006; Williams, Moore, Crossman, & Talwar, 2016). Thus, children and adolescents may lie to their friends for a variety of reasons. In fact, a study with adult participants did find that participants tell more prosocial lies to friends than antisocial lies (Ennis, Vrij, & Chance, 2008). However, it is unknown how often children lie to their friends, as well as whether it has an impact on the quality of their friendships. Thus, the current study aimed to examine how often children and adolescents report lying to their friends, and how this relates to the quality of friendships over time.

Depression

In addition to the influence on relationships, the current studies explored how depression and dishonesty would be longitudinally related in the context of both parent and friend relationships. Experiencing depressive symptoms at an early age predicts experiences with major depression disorder in adulthood (Aalto-Setälä, Marttunen, Tuulio-Henriksson, Poikolainen, & Loennqvist, 2002; Devine, Kempton, & Forehand, 1994); therefore, it is important to understand factors that might contribute to depression in younger age groups. For those under 18 years old, 10% of females and 3% of males are diagnosed with depression disorders (Costello, Erkanli, & Angold, 2006). However, an even larger portion of the population experience depressive symptoms without necessarily meeting the threshold for a clinical diagnosis (25% of females and 10% of males age 11-15; Saluja et al., 2004).

Adolescents may use lie-telling as a strategy for concealing depressive symptoms. Children and adolescents may be hesitant to be open and honest about their experiences of depression or about negative experiences more generally, and by doing so prevent others (e.g., parents, friends) from providing social support during stressful or negative experiences. This is problematic, given that social support is a protective factor in developing depressive symptoms during or after a negative experience (Barrera & Garrison-Jones, 1992; La Greca & Harrison, 2005; Herman-Stahl & Peterson, 1996; Paykel, 1994; Stice, Ragan, & Randall, 2004; Wenz-Gross, Siperstein, Untuch, & Widaman, 1997). In fact, children and adolescents who report low satisfaction with their social support networks report experiencing depressive symptoms at increased rates (Herman-Stahl & Peterson, 1996).

Children and adolescents may be wary to discuss their experience due to the stigma surrounding mental illness. Stigma is defined as a set of attitudes, behaviours, and feelings

towards a particular group based on a distinguishing feature (Overton & Medina, 2008). In the context of mental illness, stigma refers to the belief that those who experience mental illness are the cause of their illness, are undesirable, or are threatening to public safety (Barney, Griffiths, Christensen, & Jorm, 2009). Stigma presents a major barrier to those experiencing mental illness (e.g., depression) as those who hold this stigma are less likely to seek help, particularly children and adolescents (Perry, Pescosolido, Martin, McLeod, & Jensen, 2007; Pescosolido, Perry, Martin, McLeod, & Jensen, 2007; Sirey, Bruce, Alexopoulos, Perlick, Friedman, & Meyers, 2001). Given that children and adolescents are aware of the stigma they may lie about their symptoms of depression (or negative experiences) to avoid receiving a label that they know has a stigma associated with it.

Currently, we have a limited understanding of how lying might play a role in children and adolescents' experiences of depression. Research on lying and dishonesty more generally suggests a positive relation between depression and lie-telling, such that adolescents who lie more often to their parents also report increased experiences of depressed mood (Engels et al., 2006; Finkenauer et al., 2002; Frijns et al., 2005; Rote & Smetana, 2014; Smetana et al., 2009; Warr, 2007). For example, adolescents who report lying more often about where they were report experiencing depressed mood at greater rates (Warr, 2007), and keeping secrets from parents has been associated with greater depressive symptoms one year later (Frijns et al., 2005). Additionally, Laird and Marrero (2010) asked 11-year-old children to respond to hypothetical rule-breaking scenarios by indicating whether they would disclose or be dishonest to their parent about breaking that rule. Children who were more likely to disclose reported less depressed mood at age 12, suggesting a longitudinal association between these variables. In contrast, Lavoie and colleagues (2017) examined the relation between lying and internalizing problems

(depression, anxiety, social withdrawal, somatic problems) in a larger age range from 8 to 15 years of age and found that those who lied more actually experienced fewer internalizing problems. Given these contradicting findings, additional research is needed to understand whether lying is positively or negatively associated with depressive symptoms. The current study will address the direction of this association and will build on the literature by examining how lying to friends and to parents is related to self-reported depressive symptoms over time.

Study 1

Study 1 examined the relation between lying, keeping secrets, relationship quality, and depression in the context of the parent-child relationship. Children and adolescents were asked to complete questionnaires which included measures assessing how frequently they lied to their parents, how often they kept secrets from their parents, the quality of their relationship with their parents, and their experience of depressive symptoms. To look at the relation between these variables over time, participants were asked to respond to these outcomes at two time points one year apart (age 8-14 at Time 1).

The first goal of Study 1 was to examine how lying to parents would be related to age in mid-childhood to early adolescence. Current self-report research suggests that adolescents lie more than older age groups (Debey et al., 2015; Levine et al., 2013), pointing to a developmental increase in lying until sometime during adolescence; however, there is a lack of self-report research prior to this age. Debey and colleagues (2015) did include younger children in their self-report sample and found that they lied less often than adolescents (13-17 years old). Therefore, it was predicted that lying would be positively associated with age, where older participants would report lying to their parents more often.

The second goal of Study 1 was to examine how lying and secret-keeping related to the quality of the parent-child relationship over time. Adolescents have reported that they lie to their parents as a way of asserting autonomy (Desmond & Kraus, 2012, Knox et al., 2001; Jensen et al., 2004; Warr, 2007). What is less clear is how this lying is influencing the quality of the relationship between the parent and the child. Previous studies have shown that open and honest communication is concurrently related to more positive relationships between children/adolescents and parents (Engels et al., 2006; Kerr & Stattin, 2000; Stattin & Kerr, 2000; Laird & Marrero, 2010; Warr, 2007). Thus, I expect that there will be a negative association between dishonesty (lying to and keeping secrets from parents) and parent-child relationship quality. However, previous research has not examined this relation over time. The present study assessed bidirectional associations between lying, secrecy, and relationship quality at two time points to test the prediction that dishonesty might predict the quality of the parent-child relationship over time. First, lying and secret-keeping at Time 1 (T1) may predict relationship quality at Time 2 (T2); dishonesty may negatively impact relationship quality because it violates the base of trust in relationships and prevents positive or supportive interactions (Greenberg, Siegel, & Leitch, 1983; Jones, Ehrlich, Lejuez, & Cassidy, 2015; Rotenberg, 1994). It was also thought that relationship quality at T1 may predict lying and secret-keeping at T2; those with poorer relationships may be dishonest more frequently because preserving honesty and trust is less important in low quality relationships. Because of the lack of previous longitudinal work, both directions were tested.

The final goal of Study 1 was to examine how lying to parents was related to depressive symptoms over time. Previous findings indicate that depression and lying are positively associated, where those who lie more often to their parents about prudential issues report greater

depressed mood (Warr, 2007, Engels et al., 2006). However, the direction of this relation has yet to be explored using longitudinal methodology. It was hypothesized that depressive symptoms would be positively associated with lying, however bidirectional relations across time were explored. Depression may predict lying, as lying may be a negative coping strategy used to avoid discussing or sharing one's experience of depressive symptoms. In contrast, lying may lead to depression because it isolates the liar from receiving support from others when needed.

Method

Participants

The present sample consisted of children from late childhood through early adolescence. At T1, children were 8 to 14 years old ($N = 471$, $M_{\text{age}} = 10.80$, $SD = 1.70$, $n_{\text{male}} = 244$ (52%)); at T2 children were 9 to 15 years old ($N = 419$, $M_{\text{age}} = 11.57$, $SD = 1.64$, $n_{\text{male}} = 217$ (52%)). Participants were recruited from elementary schools in a mid-sized city in Southern Ontario, Canada. Parent report indicated that 86.5% of the children and adolescents were white, 1.7% were Black, .9 % were Asian, 1.4% were Hispanic, .6% were Indigenous, and 8.0% were mixed race (.9% preferred not to report their race). The majority of the sample (57.9%) had parents who reported their highest level of education as completing college or university.

Primary Measures

Lying. Lying to parents at each time point was assessed using two questions (*Since the beginning of summer last year, how often have you (1) lied to your parents, (2) lied to your parents about something important*; see Appendix A). At T1, these questions were answered on a 5-point scale ranging from 1 (never lied) to 5 (lied 10 or more times). At T2, participants were given a numerical scale from 0 to 10 (rather than the 5-point scale) to allow participants to provide an exact number of lies rather than a range. If they lied more than 10 times, there was an

open-ended option where they could report how many lies they told. These responses were recoded to match the scale used at T1.

Responses on these two questions were averaged to create a measure of how often children and adolescents lied to their parents. Spearman-Brown correlation between items was $\rho = .55$ and $.82$ at T1 and T2. Because the scale was changed to be more precise for T2, it may have resulted in a more reliable measure.

Secret-Keeping. Keeping secrets from parents at each time point was assessed using two questions (*How often do you keep a lot of secrets from your parents about how school is going? How often do you keep a lot of secrets from your parents about what you do during your free time?*). These questions were answered on a 4-point scale ranging from 1 (almost never) to 4 (almost always). Responses on these two questions were averaged to create a composite measure of secret-keeping ($\rho = .66$ at T1 and T2; see Appendix B).

Relationship Quality. Relationship quality at each time point was measured using the Inventory of Parent and Peer Attachment (see Appendix C; Armsden & Greenberg, 1987). Parent relationship quality was assessed using a subset of seven questions, answered separately for their relationship with their mother and with their father (e.g., *My mother/father cares about my point of view*). Participants responded to these questions based on how often they experience each item in the context of their relationship with each parent on a 1 (never) to 4 (almost always) scale. Scores were averaged across items and across both parents to create an overall measure of relationship quality with parents ($\alpha = .81$ and $.80$ for T1 and T2).

Depression. Depressive symptoms at each time point were assessed using the 20 item Center for Epidemiological Studies Depression (CES-D) Scale for Children (see Appendix D; Radloff, 1977; Weissman, Orvaschel, & Padian, 1980). Due to the young age of the sample,

children responded to a subset of seven questions best suited for the age. Children were asked how often they had experienced each symptom in the previous week (e.g., *During the past week, I felt lonely, like I didn't have any friends*), and were answered on a 4-point scale ranging from 1 (not at all) to 4 (a lot of the time; $\alpha = .79$ and $.83$ for T1 and T2). To create a composite score for depression, participants' responses were averaged across the seven items.

Covariates

Demographics. Children provided their age and sex at each time point. To control for socioeconomic status, one parent in the home reported on each parent's highest level of education. Responses were provided at T1 and averaged across parent 1 and parent 2.

Procedure

Participants were recruited through visits to schools and completed surveys during school hours. Participants provided informed assent and parents provided informed consent at T1. Participants who completed the survey at T1 were invited to complete it again at T2; surveys were completed during the same time of year for each time point. The survey each year was split into two parts that were completed at different time periods. Participants were compensated with small gifts (e.g., backpacks, pencils). Parents reported on demographic variables in a survey that was completed at home and submitted with the child's consent form.

Missing Data

Missing data occurred because some students did not complete all the questions in the surveys (average missing data was 2.55% at Year 1, and 4.2% at Year 2), and because some students did not complete each part of the survey in Year 1 and Year 2 (as mentioned in the procedure, the survey each year was split into two parts that were completed at different time periods; missing data was due to absenteeism but also occasionally to time conflicts, students

declining to participate in one part of the survey, and students moving another school district with no contact information). For the first part of the survey (containing the parent/child relationship quality and secret keeping questions), in Year 1 8.7% of students missed the survey and in Year 2 16.8% missed the survey. For the second part of the survey (containing the lying to parents and depression measures), in Year 1 1.5% of students missed the survey, and in Year 2 19.5% missed the survey. Participants who were missing at Time 2 reported significantly higher lie-telling at Time 1 ($p = .001$). Missing data were estimated using the full information maximum likelihood (FIML) estimation method. FIML retains cases that are missing survey waves, thus avoiding the biased parameter estimates that can occur with pairwise or listwise deletion (Schafer & Graham, 2002).

Results

To explore the hypothesized relationships between lying, secrecy, relationship quality, and depression, three separate models were analyzed. Because these relationships have not been tested longitudinally in this age group, it was important to evaluate simpler models first, and then examine more complex models by adding in variables to fully understand how lying and secrecy would be related to relationship quality and depression. Thus, the first model included only lying, relationship quality, and covariates; subsequent models (2 and 3) built on this by adding secrecy and depression to examine their longitudinal association with lying.

Analyses were carried out using autoregressive cross-lagged path analysis in Mplus8. T1 variables included lying, secrecy, relationship quality, depression, and 3 covariates (age, sex, SES; see Table 1 for means and standard deviations). Correlations among T1 variables were estimated in each model (see Table 2 for correlations); however, correlations among covariates (age, sex, and SES) were not expected to be significant and were not estimated (Willoughby,

Heffer, & Hamza, 2015). T2 variables included lying, secrecy, relationship quality and depression. All autoregressive and cross-lag paths were estimated for lying, secrecy, relationship quality, and depression from T1 to T2, as well as associations between T1 covariates and T2 variables. Any significant cross-lagged paths accounted for previous scores (autoregressive path), covariate scores, and associations between variables at each time point. As such, significant cross-lagged paths represent unique associations between T1 and T2 variables in the model.

Table 1

Descriptive Statistics for Study 1 Variables

| Variables | Time 1 <i>M(SD)</i> | Time 2 <i>M(SD)</i> |
|----------------------|---------------------|---------------------|
| Lying to Parents | 2.02(.99) | 2.53(1.03) |
| Secret-keeping | 1.52(.71) | 1.57(.75) |
| Relationship Quality | 3.27(.53) | 3.08(.54) |
| Depressive Symptoms | 1.68(.61) | 1.74(.65) |
| Age (years) | 10.80(1.70) | 11.69(1.69) |
| Sex (% males) | 52.0% | 52.0% |
| Parental Education | 10.31(1.90) | - |

Note. Parental education was only measured at T1.

Model 1: Lying and Relationship Quality

The first model included lying to parents and relationship quality with parents, as well as the three covariates (age, sex, SES). All cross-lagged and autoregressive pathways were estimated between T1 and T2 variables, as well as concurrent correlations (apart from

correlations between covariates). Model fit was well-specified, $\chi^2(3) = 7.199$, $p = .066$, CFI = .980 and RMSEA = .055, 90% CI [.00, .107].

Age was a significant positive predictor of lying, $\beta = .212$, $B = .130$, $SE = .029$, $p < .001$, 95% CI [.135, .288], and of relationship quality, $\beta = .140$, $B = .045$, $SE = .015$, $p = .003$, 95% CI [.064, .216], such that being older was associated with greater lying and relationship quality over time. Additionally, there was a significant relationship between relationship quality and lying, such that poorer relationship quality at T1 was associated with more lying at T2, $\beta = -.111$, $B = -.217$, $SE = .099$, $p = .029$, 95% CI [-.194, -.028].

Model 2: Lying, Secrecy, and Relationship Quality

Secret-keeping was added in the second model to assess how secrecy would be related to lying and relationship quality over time. All cross-lagged and autoregressive pathways were estimated between T1 and T2 variables, as well as concurrent correlations (apart from correlations between covariates). Model fit was well-specified, $\chi^2(3) = 7.481$, $p = .058$, CFI = .987 and RMSEA = .056, 90% CI [.00, .108].

Age was a significant positive predictor of all T2 outcomes. Being older at T1 was associated with more secret-keeping at T2, $\beta = .152$, $B = .068$, $SE = .021$, $p = .001$, 95% CI [.076, .228], more lying at T2, $\beta = .209$, $B = .129$, $SE = .029$, $p < .001$, 95% CI [.134, .285], and better relationship quality at T2, $\beta = .143$, $B = .046$, $SE = .015$, $p = .002$, 95% CI [.068, .218]. SES was a significant negative predictor of secret-keeping, such that lower SES was associated with greater secret-keeping at T2, $\beta = -.189$, $B = .073$, $SE = .021$, $p = .001$, 95% CI [-.279, -.099].

Secret-keeping was a significant predictor of lying, such that keeping more secrets at T1 was associated with more lying at T2, $\beta = .124$, $B = .181$, $SE = .081$, $p = .025$, 95% CI [.033, .215]. Additionally, a bidirectional relationship emerged between secret-keeping and relationship

quality. Poorer relationship quality at T1 was associated with keeping more secrets at T2, $\beta = -.118$, $B = -.181$, $SE = .081$, $p = .016$, 95% CI [-.198, -.038], and keeping more secrets at T1 was associated with poorer relationship quality at T2, $B = -.107$, $SE = .040$, $p = .007$, $\beta = -.141$, 95% CI [-.227, -.055]. With secret-keeping included in the model, lying was no longer a significant predictor of relationship quality (see Table 2 for correlations).

Model 3: Lying, Secrecy, Relationship Quality, and Depression

In the final model, depression was included with lying, secret-keeping and parent-child relationship quality. All cross-lagged and autoregressive pathways were estimated between T1 and T2 variables, as well as concurrent correlations (apart from correlations between covariates). Model fit was well-specified, $\chi^2(3) = 7.348$, $p = .062$, CFI = .991 and RMSEA = .055, 90% CI [.00, .108]. See Table 2 for all autoregressive and cross-lagged paths.

Age was a significant predictor of secret-keeping, lying, relationship quality, and depression over time. Being older was associated with more secret-keeping, $\beta = .144$, $B = .065$, $SE = .021$, $p = .002$, 95% CI [.067, .220], more lying, $\beta = .205$, $B = .126$, $SE = .028$, $p < .001$, 95% CI [.130, .280], greater relationship quality, $\beta = .152$, $B = .049$, $SE = .015$, $p = .001$, 95% CI [.077, .226], and greater depressive symptoms, $\beta = .099$, $B = .039$, $SE = .019$, $p = .037$, 95% CI [.021, .177], at T2. SES was also a significant predictor of secret-keeping, such that higher SES predicted less secret-keeping over time, $B = -.069$, $SE = .022$, $p = .002$, $\beta = -.177$, 95% CI [-.268, -.086]. Sex emerged as a significant predictor as well, such that being male was associated with keeping more secrets over time, $\beta = -.091$, $B = -.138$, $SE = .071$, $p = .049$, 95% CI [-.166, -.015]. Multilevel modelling analysis revealed that models did not significantly differ between males and females, $\chi^2_{\text{diff}}(12) = 9.03$, $p > .05$.

There were several significant cross-lag paths in the model (see Figure 1). The bidirectional relationship between relationship quality and secret-keeping remained significant; greater secret-keeping at T1 was associated with poorer relationship quality at T2, $p = .034$, and poorer relationship quality at T1 was associated with greater secret-keeping at T2, $p = .022$. Additionally, greater depressive symptoms at T1 was associated with more lying at T2, $p < .001$. Poorer relationship quality at T1 was associated with greater depressive symptoms at T2, $p = .004$. See Table 3 for full model results.

Table 2

Correlations between Study 1 Variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|---|----|----|
| 1. Lying to Parents T1 | - | | | | | | | | | | |
| 2. Lying to Parents T2 | .440 | - | | | | | | | | | |
| 3. Secret-keeping T1 | .427 | .304 | - | | | | | | | | |
| 4. Secret-keeping T2 | .228 | .400 | .356 | - | | | | | | | |
| 5. Relationship Quality T1 | -.220 | -.200 | -.255 | -.242 | - | | | | | | |
| 6. Relationship Quality T2 | -.069 | -.199 | -.208 | -.356 | .464 | - | | | | | |
| 7. Depressive Symptoms T1 | .180 | .290 | .321 | .188 | -.299 | -.231 | - | | | | |
| 8. Depressive Symptoms T2 | .172 | .316 | .155 | .347 | -.302 | -.361 | .499 | - | | | |
| 9. Age | .201 | .267 | .084 | .160 | .009 | .162 | -.018 | .094 | - | | |
| 10. Sex | -.014 | -.025 | -.078 | -.092 | .058 | .044 | .121 | .062 | - | - | |
| 11. Parental Education | -.003 | -.047 | -.009 | -.190 | .173 | .169 | -.179 | -.160 | - | - | - |

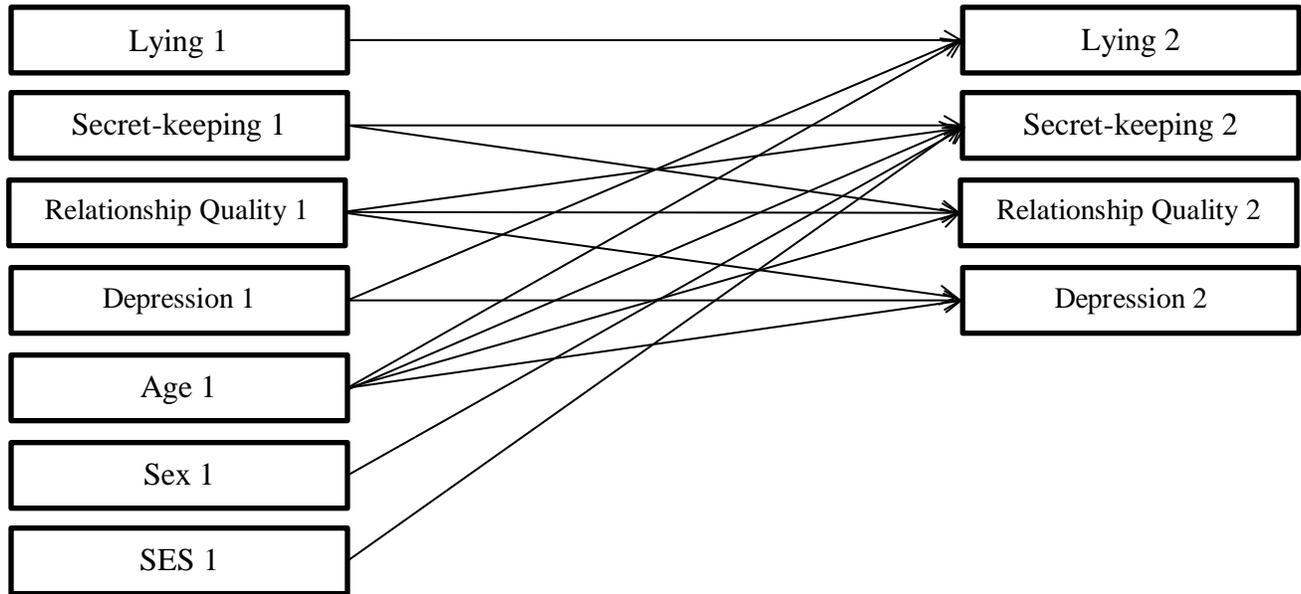
Table 3

Study 1 Model 3 Autoregressive Cross-Lagged Model Results

| | <i>B</i> | <i>SE</i> | β | 95% CI |
|---|-----------|-----------|---------|----------------|
| Cross-Lagged Paths | | | | |
| Lying to Parents 1 → Secret-keeping 2 | 0.037 | 0.041 | 0.048 | [-.039, .136] |
| Lying to Parents 1 → Relationship Quality 2 | 0.029 | 0.029 | -0.053 | [-.033, .138] |
| Lying to Parents 1 → Depression 2 | 0.043 | 0.037 | 0.064 | [-.027, .154] |
| Secret-keeping 1 → Lying to Parents 2 | 0.099 | 0.082 | 0.069 | [-.024, .161] |
| Secret-keeping 1 → Relationship Quality 2 | -0.087 * | 0.041 | -0.115 | [-.204, -.026] |
| Secret-keeping 1 → Depression 2 | -0.063 | 0.055 | -0.068 | [-.165, .030] |
| Relationship Quality 1 → Lying to Parents 2 | -0.099 | 0.082 | -0.046 | [-.131, .039] |
| Relationship Quality 1 → Secret-keeping 2 | -0.165 * | 0.072 | -0.115 | [-.197, -.033] |
| Relationship Quality 1 → Depression 2 | -0.202 ** | 0.069 | 0.161 | [-.251, -.071] |
| Depression 1 → Lying to Parents 2 | 0.341 *** | 0.086 | 0.200 | [.118, .283] |
| Depression 1 → Secret-keeping 2 | 0.049 | 0.065 | 0.039 | [-.046, .125] |
| Depression 1 → Relationship Quality 2 | -0.059 | 0.045 | -0.066 | [-.149, .017] |
| Autoregressive Paths | | | | |
| Lying to Parents 1 → Lying to Parents 2 | 0.339 *** | 0.056 | 0.322 | [.239, .405] |
| Secret-keeping 1 → Secret-keeping 2 | 0.287 *** | 0.060 | 0.270 | [.180, .359] |
| Relationship Quality 1 → Relationship Quality 2 | 0.422 *** | 0.050 | 0.412 | [.338, .486] |
| Depression 1 → Depression 2 | 0.492 *** | 0.058 | 0.451 | [.372, .531] |

Note. *B* = unstandardized beta weights, *SE* = standard error of unstandardized model, β = standardized beta weights, CI = standardized confidence intervals. Numbers 1 and 2 indicate Time 1 and Time 2, respectively. **p* < .05. ***p* < .01. ****p* < .001.

Figure 1. Significant autoregressive and cross-lagged paths for Model 3 (Study 1).



Study 1 Discussion

The goal of Study 1 was to examine longitudinal relationships between age, adolescent dishonesty (lying and keeping secrets) to parents, parent-child relationship quality, and depression. I expected to find significant relationships between lying and relationship quality, secret-keeping and relationship quality, and lying and depression. Several novel and important findings were discovered. First, consistent with my prediction, age was a significant positive predictor of lying to parents. This is consistent with previous self-report studies that find that adolescents lie more than other age groups (Debey et al., 2015; Levine et al., 2013), supporting the idea that lie-telling continues to increase during this developmental stage. Previous research has suggested that one reason lying to parents increases during this developmental time point is to gain autonomy and privacy (Desmond & Kraus, 2012; Gingo et al., 2017; Jensen et al., 2004; Knox et al., 2001; Rote & Smetana, 2014; Warr, 2007). However, children and adolescents may also be telling more lies in general, not only related to autonomy. For example, they may lie to their parents to avoid punishment or negative consequences. This could be related to the increase in risk-taking; adolescence may lie more than children to hide the risk behaviours they engage in from parents. Future studies are needed to further understand the motivations for lying and why lie-telling increases into adolescence and could explore the relation between lie-telling and risk-taking as one potential explanation.

Second, I found initial support for the prediction that lying would be negatively associated with the quality of the parent-child relationship over time. In Model 1, lying was a significant negative predictor, where lying more often was related to poorer relationship quality over time. However, when keeping secrets from parents was added to the model lying no longer predicted relationship quality, and secret-keeping at T1 became a significant negative predictor

of relationship quality at T2. As seen on Table 2, lying and secret-keeping were highly correlated, which suggests that lying shares variance with secret-keeping, and secret-keeping shares more unique variance with relationship quality than lie-telling. Given that lie-telling and secret-keeping are highly related, secret-keeping may represent the most important aspect of dishonesty for relationships: the act of concealing information. Keeping thoughts, feelings, or experiences private isolates a person from others, and creating this isolation or barrier between two individuals could create a less positive perception of the relationship; concealment indicates to the concealer that perhaps they do not trust the other person fully, that the other person is not supportive of disclosures, or that there is some other issue that results in a more negative perception of the relationship.

The relation between secret-keeping and relationship quality found here supports previous studies that show that honesty and relationship quality are positively related, but also provides evidence that these are related over time (Engels et al., 2006; Kerr & Stattin, 2000; Stattin & Kerr, 2000; Laird & Marrero, 2010; Warr, 2007). Rotenberg's (1994) interpersonal trust framework highlights that individuals expect honesty within relationships. The bidirectional relationship in Study 1 suggests that children and adolescents understand that parents expect honesty because the participants were reporting on their own perceptions of the parent-child relationship. To build secure attachment and a positive relationship overall, children need to honestly discuss their experiences (and potential problems) with their parents so that parents can provide support and security for their child (Greenberg et al., 1983; Jones et al., 2015). If children keep their problems secret, there are limited opportunities for parents to provide a safe, supportive relationship, and the quality of this relationship would decline over time.

Furthermore, when the relationship declines, then adolescents become more likely to continue to keep secrets, resulting in the bidirectional pattern seen in Model 3.

Importantly, the relation found between secret-keeping and parent-child relationship quality emphasizes the need to focus on the child's role in the parent-child relationship, rather than just focusing on the parent's influence on the child. In the context of romantic relationships, when one person in a relationship lies he or she also perceives the other person as dishonest and less trustworthy (Sagarin et al., 1998). Additionally, Evans and Lee (2014) found that adolescents who had previously cheated and lied in the temptation resistance paradigm were more likely to assume their peers had also cheated and lied. These findings highlight the influence of the child's own behaviour on their perceptions. When a child is dishonest towards their parents they perceive the relationship to be less positive, perhaps because they now consider trust to be lowered because they have acted in a way that violates that trust.

Finally, consistent with predictions, greater depressive symptoms were related to more lying over time. Children and adolescents experiencing symptoms of depression may be inclined to lie to their parents about that experience because they are afraid of experiencing a negative or unsupportive reaction to their disclosure of depressed or negative mood (Perry et al., 2007; Pescosolido et al., 2007; Sirey et al., 2001). Alternatively, they may be prosocially motivated, in that they lie about their depressive symptoms because they do not want their parents to be concerned. Additionally, autonomy may also play a role; adolescents may lie to maintain some autonomy or privacy over how to cope with depression. Parents who discover their children are experiencing these symptoms may seek support or help for their child and want to be involved in treatments. However, adolescents prefer to make decisions about their mental health themselves, attend therapy sessions alone, and make treatment related decisions without their parents

(Andrews, Hall, Teesson, Henderson, 1999; Gould et al., 2004; Wisdom, Clark, & Green, 2006). Children and adolescents who feel depressed may be lying, then, to manage others' perceptions of and maintain control over how to cope with their symptoms.

Taken together, the results of Study 1 suggest that dishonesty plays an important role in both relationship quality and depressive symptoms. Given these findings, the second goal of my thesis was to extend these findings to friendships, which grow in importance from childhood through adolescence.

Study 2

The results of Study 1 demonstrated that dishonesty negatively impacts the parent-child relationship; therefore, the goal of Study 2 was to extend these findings to children and adolescents' friendships. More specifically, Study 2 examined how lying to friends would be related to friendship quality and depression over time. Given that the measures were part of a larger longitudinal project, measures for secret-keeping in the context of friendships were not collected and thus could not be examined as part of this second investigation.

The first goal of Study 2 was to examine how lying to friends would be related to age from mid-childhood to early adolescence. As previously mentioned, past research indicates a peak in lie-telling during adolescence (Debey et al., 2015; Levine et al., 2013); however, previous studies have yet to examine adolescents' lying to their friends. Therefore, it was predicted that lying to friends would be positively associated with age, with older participants reporting lying more often to their friends than younger participants.

The second goal of Study 2 was to examine the relation between lying and children and adolescents' friendship quality. Previous research has yet to examine adolescents' lying to their friends, or the relation between lie-telling and friendship quality. Similar to parent-child

relationships, I hypothesized that greater lying to friends will be negatively associated with friendship quality, as lying violates the expectation of honesty in relationships (Rotenberg, 1994). Furthermore, the relation between lying and relationship quality over time will be explored. It is possible that lying at T1 may predict relationship quality at T2, because honesty is one of the main expectations for building trust in relationships (Armsden & Greenberg, 1987; Bauminger et al., 2008; Parker & Asher, 1993; Rotenberg, 1994; Villalobos Solis et al., 2015) and violating that expectation of honesty may lead to less trust and therefore poorer relationship quality. It was also thought that relationship quality at T1 may predict lying at T2; those with poorer relationships may lie more because preserving honesty and trust is less important in low quality relationships.

The final goal of Study 2 was to examine how lying to friends and depression are related to one another over time. Previous findings suggest that depression and lying to parents are positively associated (Warr, 2007, Engels et al., 2006); therefore, the present study extended this research to lying to friends. Positive friendship qualities, such as providing support and engaging in intimate disclosure, have been found to be associated with depression (Bagwell et al., 2005; Oldenberg & Kerns, 1997; Parker & Asher, 1993; Windle, 1994). Given that lying would prevent individuals from experiencing the positive friendship qualities that would provide support, it was expected that depression would be positively associated with lying to friends. Depression may predict lying over time, as lying may be a negative coping strategy used to avoid discussing or sharing one's' experience of depressive symptoms. In contrast, lying may lead to depression over time because it isolates the liar from building positive friendships that would provide support for experiencing depressive symptoms.

Method

Participants

The present study used the same sample as Study 1 (8 to 14 years old at T1: $N = 471$, $M_{\text{age}} = 10.80$, $SD = 1.70$, $n_{\text{male}} = 244$ (52%); 9 to 15 years old at T2: $N = 419$, $M_{\text{age}} = 11.57$, $SD = 1.64$, $n_{\text{male}} = 217$ (52%)). Participants were recruited from elementary schools in a mid-sized city in Southern Ontario, Canada. Parent report indicated that 86.5% of the children and adolescents were white, 1.7% were Black, .9 % were Asian, 1.4% were Hispanic, .6% were Indigenous, and 8.0% were mixed race (.9% preferred not to report their race). The majority of the sample (57.9%) had parents who reported their highest level of education as completing college or university.

Primary Measures

The design of Study 2 followed that of Study 1. Each measure was distributed in survey form in schools, administered one year apart. All measure remained the same, apart from the lying and relationship quality measures outlined below.

Lying. Lying to friends was assessed using the following question: *Since the beginning of summer last year, how often have you lied to your friends?* Participants responded on a 5-point scale ranging from 1 (never lied) to 5 (lied 10 or more times; see Appendix A).

Relationship Quality. Relationship quality at each time point was measured using the Inventory of Parent and Peer Attachment (Appendix C; Armsden & Greenberg, 1987), where relationship quality was assessed using 10 questions asking about participants' experiences in their relationships with their friends (e.g., *My friends are concerned about my well-being*). Participants responded to these questions based on how often they experienced each item in the context of that relationship on a 1 (never) to 4 (almost always) scale ($\alpha = .75$ and $.79$ for T1 and

T2). Responses were averaged across these items to create a composite measure of friendship quality.

Missing Data

Missing data occurred because some students did not complete all the questions in the surveys (average missing data was 1.88% at Year 1, and 3.51% at Year 2), and because some students did not complete each part of the survey in Year 1 and Year 2 (as mentioned in the procedure, the survey each year was split into two parts that were completed at different time periods; missing data was due to absenteeism but also occasionally to time conflicts, students declining to participate in one part of the survey, and students moving another school district with no contact information). For the first part of the survey (containing the friendship quality questions), in Year 1 8.7% of students missed the survey and in Year 2 16.8% missed the survey. For the second part of the survey (containing the lying to friends and depression measures), in Year 1 1.5% of students missed the survey, and in Year 2 19.5% missed the survey. Missing data, however, was not related to the variables used in the current analyses ($ps > .05$). Thus, missing data were estimated using the full information maximum likelihood (FIML) estimation method. FIML retains cases that are missing survey waves, thus avoiding the biased parameter estimates that can occur with pairwise or listwise deletion (Schafer & Graham, 2002).

Results

Analyses were carried out using autoregressive cross-lagged path analysis in Mplus8 in the same way as Study 1 (i.e., autoregressive paths, cross-lag paths, correlations within each time point). Given that previous research has not examined lie-telling in the context of children and adolescents' friendships, two separate models were run. Model 1 examined the relation between lying and relationship quality, with depressive symptoms added in Model 2. These separate

models were examined so that the relations between lying and relationship quality could be assessed without accounting for variance explained by depression (see Table 4 for means and standard deviations; Table 5 for correlations).

Table 4

Descriptive Statistics for Study 2 Variables

| Variables | Time 1 <i>M(SD)</i> | Time 2 <i>M(SD)</i> |
|----------------------|---------------------|---------------------|
| Lying to Friends | 1.60(.71) | 2.58(1.01) |
| Relationship Quality | 3.15(.54) | 3.18(.53) |
| Depressive Symptoms | 1.68(.61) | 1.74(.65) |
| Age (years) | 10.80(1.70) | 11.69(1.69) |
| Sex | 52.0% | 52.0% |
| Parental Education | 10.31(1.90) | - |

Note. Parental education only measured at T1.

Model 1: Lying to Friends and Relationship Quality

The first model included lying to friends and relationship quality with friends, as well as the three covariates. All cross-lagged and autoregressive pathways were estimated between T1 and T2 variables, as well as concurrent correlations (apart from correlations between covariates). Model fit was well-specified, $\chi^2(2) = 4.228, p = .121, CFI = .985$ and $RMSEA = .049, 90\% CI [0.00, 0.114]$.

In this model, age was a significant positive predictor of lying, such that being older predicted more lying to friends at T2, $\beta = .299, B = .178, SE = .030, p < .001, 95\% CI [.218,$

.379]. Lying to friends and relationship quality were not significantly related to one another over time.

Model 2: Lying to Friends, Relationship Quality, and Depression

Depression was added to the model in Model 2. All cross-lagged and autoregressive pathways were estimated between T1 and T2 variables, as well as concurrent correlations (apart from correlations between covariates). Model fit was well-specified, $\chi^2(3) = 6.904$, $p = .075$, CFI = .985, and RMSEA = .053, 90% CI [.00, .105].

Age was a significant predictor of both lying and depression. Being older was associated with more lying, $\beta = .293$, $B = .174$, $SE = .030$, $p < .001$, 95% CI [.213, .373], and greater depressive symptoms, $\beta = .103$, $B = .040$, $SE = .019$, $p = .038$, 95% CI [.022, .184], over time.

Friendship quality emerged as a significant negative predictor of depression, such that poorer friendship quality was associated with greater depressive symptoms over time, $p = .021$. Additionally, depression significantly predicted lying over time, such that greater depressive symptoms predicted more lying over time, $p = .004$. See Table 6 for full model results.

Table 5

Correlations between Study 2 Variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------------------|-------|-------|-------|-------|-------|-------|---|---|---|
| 1. Lying to Friends T1 | - | | | | | | | | |
| 2. Lying to Friends T2 | .310 | - | | | | | | | |
| 3. Relationship Quality T1 | -.045 | -.074 | - | | | | | | |
| 4. Relationship Quality T2 | -.084 | -.143 | .403 | - | | | | | |
| 5. Depressive Symptoms T1 | .189 | .182 | -.290 | -.142 | - | | | | |
| 6. Depressive Symptoms T2 | .100 | .198 | -.249 | -.274 | .499 | - | | | |
| 7. Age | .201 | .330 | .072 | .067 | -.015 | .083 | - | | |
| 8. Sex | -.010 | -.064 | .198 | .167 | .119 | .063 | - | - | |
| 9. Parental Education | .024 | .030 | .110 | -.009 | -.178 | -.142 | - | - | - |

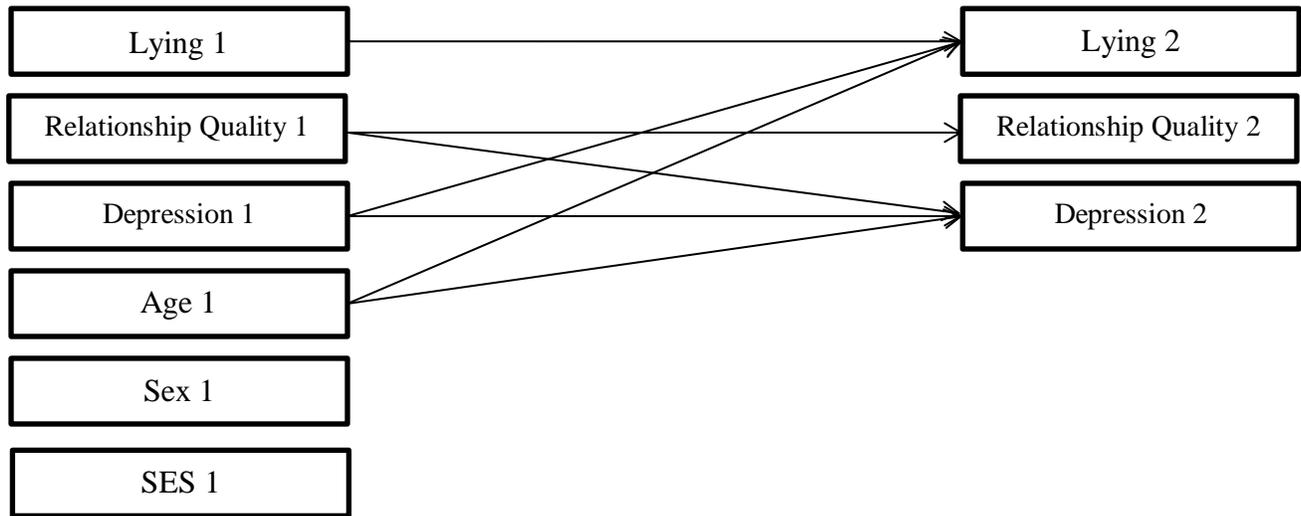
Table 6

Study 2 Model 2 Autoregressive Cross-Lagged Model Results

| | <i>B</i> | <i>SE</i> | β | 95% CI |
|---|-----------|-----------|---------|----------------|
| Cross-Lagged Paths | | | | |
| Lying to Friends 1 → Relationship Quality 2 | -0.039 | 0.027 | -0.068 | [-.147, .011] |
| Lying to Friends 1 → Depression 2 | -0.007 | 0.037 | -0.010 | [-.094, .075] |
| Relationship Quality 1 → Lying to Friends 2 | -0.047 | 0.098 | -0.025 | [-.112, .061] |
| Relationship Quality 1 → Depression 2 | -0.150 * | 0.065 | -0.124 | [-.212, -.036] |
| Depression 1 → Lying to Friends 2 | 0.253 ** | 0.087 | 0.154 | [.067, .240] |
| Depression 1 → Relationship Quality 2 | -0.035 | 0.045 | -0.040 | [-.126, .045] |
| Autoregressive Paths | | | | |
| Lying to Friends 1 → Lying to Friends 2 | 0.238 *** | 0.054 | 0.219 | [.139, .299] |
| Depression 1 → Depression 2 | 0.489 *** | 0.057 | 0.453 | [.375, .531] |
| Relationship Quality 1 → Relationship Quality 2 | 0.363 *** | 0.051 | 0.373 | [.293, .454] |

Note. *B* = unstandardized beta weights, *SE* = standard error of unstandardized model, β = standardized beta weights, CI = standardized confidence intervals. Numbers 1 and 2 indicate Time 1 and Time 2, respectively. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2. Significant autoregressive and cross-lagged paths for Model 2 (Study 2).



Study 2 Discussion

The goal of Study 2 was to examine lie-telling in friendships to determine whether lying to friends would also be positively associated with age between middle childhood and adolescence. Additionally, the relation between lie-telling, relationship quality, and depression over time was explored. Consistent with our predictions, lying to friends was found to increase with age. However, contrary to our predictions, lying to friends was not related to relationship quality over time.

This is the first study to examine children and adolescents' lie-telling specifically in the context of their friendships, which become an integral part of their social network. As with Study 1, Study 2 aligned with previous self-report studies suggesting that lie-telling increases during childhood and early adolescence (Debey et al., 2015; Levine et al., 2013). Given that previous research has either focused on lie-telling more generally (Debey et al., 2015; Levine et al., 2013) or on lying to parents (Jensen et al., 2004; Warr, 2007), this study provides the first evidence that children and adolescents are lying more to their friends with age as well. Lying to friends may increase for social reasons. During this time of development, peer approval and acceptance becomes increasingly important and social aspects of the environment are highly salient (Olthof & Goossens, 2008; Mayeux & Kraft, 2017; Steinberg, 2010). Adolescents may try to gain approval or acceptance by lying about their interests, personal opinions, the types of activities or behaviours they engage in, or experiences they think may help with their social status. Future studies should ask specifically about the types of lies adolescents tell their friends to further understand the motivations behind this increase in lie-telling.

Given the developmental increase in lie-telling and the relation between lie-telling and parent-child relationship quality found in Study 1, it was important to assess the influence of

lying on friendship quality. Contrary to predictions, lying to friends was not significantly related to relationship quality over time. This may be because friendships are still evolving during this age, and that these relationships are not yet susceptible to the negative effects of dishonesty (Bauminger et al., 2008 2008; Shulman, Laursen, Kalman, & Karpovsky, 1997). Future studies should examine lying and relationships in older age groups to assess whether lying might have an impact once relationships are more stable.

Finally, greater depressive symptoms were associated with lying more over time. Perhaps adolescents who experience depressive symptoms lie to their friends about that experience. At this age, children and adolescents may not have yet formed the type of relationship with their friends in which they would feel comfortable expressing their experiences of depressive symptoms. Children at this age typically rely on parents for support for mental illness (Logan & King, 2001). Despite the high reports of friendship quality in the sample, children and young adolescents may believe that even though they trust their friends and have generally positive relationships, they may not be an adequate source of support to help them with depressive symptoms specifically. Given that those who disclose these negative emotions fear experiencing stigma and negative reactions, they are not likely to disclose depressive symptoms in relationships where they fear a negative response (Perry et al., 2007; Pescosolido et al., 2007; Sirey et al., 2001). It is also possible that children and adolescents are not lying specifically to hide their experiences of depression, but that those experiencing these symptoms are lying more across a variety of areas. Future research should ask specifically what adolescents are lying about to explore this potential explanation.

The findings of Study 2 further show evidence for the increase in lying from childhood to adolescence by examining lying in the context of friendships. While lying was not related to the

quality of relationships over time, depressive symptoms were positively associated with lying over time. Overall, lie-telling was found to be a prominent behaviour in children and adolescents' friendships at this age.

General Discussion

The overarching goal of my thesis was to examine lie-telling in the context of two important relationships (parents and friends) and to assess how lie-telling is associated with relationship quality and depression over time. Given the changes in the importance of these relationships and the influence these relationships have on other areas of functioning, it is vital to understand what behaviours adolescents engage in that might damage the quality of these relationships. Overall, lying was found to increase with age, keeping secrets from parents predicted parent-child relationship quality, and depressive symptoms predicted lie-telling parents and friends over time.

Lying to both parents and friends was positively related to age. The findings across these two studies support previous work suggesting that lie-telling increases from childhood into adolescence (Debey et al., 2015; Levine et al., 2013). As has been found in previous research, one potential reason for this increase in lying in adolescence is to gain autonomy. However, this only applies to the parent context and typically only involves antisocial lies, highlighting the need to ask adolescents about lie-telling in various contexts and for various motivations. The present study also found lying to friends to increase with age, suggesting that this increase in lie-telling occurs across domains and relationships. Perhaps the social changes adolescents experience are driving their increased propensity for dishonesty. Social contexts change from childhood through adolescence, and due to this instability, they may be inclined to tell lies to

ease the transitions and conflicts they experience. For example, they may lie to avoid fights with their parents or to avoid disagreements with their friends to try to maintain those relationships.

As lie-telling increases with age, it is important to understand the implications of dishonesty for various areas of functioning. Maintaining positive relationships during adolescence remains important for a variety of outcomes, such as self-esteem (Kashubeck, & Christensen, 1995; Kim & Cicchetti, 2004; Thomas & Daubman, 2001). Trust is a vital part of healthy relationships, and honesty is a central tenet to maintaining trust in both parent and peer relationships (Armsden & Greenberg, 1987; Bauminger et al., 2008; Gingo et al., 2017; Kerr et al., 1999; Parker & Asher, 1993; Rotenberg, 1994). While it was thought that dishonesty would be related to poorer relationship quality over time, this was only confirmed in the context of the parent-child relationship and not in friendships. This could be due to the changing nature of friendships during this stage. In contrast, parent relationships have been formed and maintained since infancy, and this relationship has established trust (or distrust). In contrast to parent-child relationships, friendships may not be stable or important enough at this age to be significantly impacted by the act of dishonesty. Alternatively, adolescents may be telling different types of lies to parents and friends. Perhaps the types of lies told to parents are more detrimental to trust, while lies to friends may be more prosocial or less serious lies that have a lesser impact on trust and overall relationship quality. Future studies should examine the types of lies told in these contexts to further explore this explanation.

Lying to both parents and to friends was significantly related to depression over time. Specifically, those who experienced greater depressive symptoms at T1 reported lying more often at T2; this was true in the context of both parent-child relationships and friendships. This finding suggests that those who experience depressive symptoms are lying more often than those

who experience fewer/less frequent symptoms. Given that reports of depressive symptoms increased with age, this may be one of the reasons that lie-telling was positively associated with age as well; children and adolescents might be lying to hide their symptoms from their family and friends. This could be for multiple reasons. First, they may be impacted by the stigma surrounding mental illness and be hesitant to come forward because they are worried about experiencing that negative stigma (Perry et al., 2007; Pescosolido et al., 2007; Sirey et al., 2001). Second, they may also be lying about their experience out of concern for the other person in the relationship, to prevent their parents and friends from worrying about them or influencing the other person's mood by truthfully reporting their own negative mood or experiences.

Knowing that those who experience depression are lying more often presents one area of possible intervention, specifically if this becomes a cyclical process. It is possible that experiencing depression leads to increased lying, but that lying also isolates the self from others and receiving potentially positive social support and thus leads to greater depressive symptoms. Obtaining support from one's social network is a key factor for protecting against or recovering from depressive symptoms (Herman-Stahl & Peterson, 1996). Lying about one's experiences of depression would prevent social support from being received. Encouraging those who are experiencing symptoms to be honest about that experience may be a key step to preventing some individuals from experiencing greater problems later on. However, we do not know from the current research whether adolescents really are lying specifically about their depression, so further research is needed to explore why those who experience depression are lying more often.

Limitations

Lie-telling in the current study was measured using broad questions (e.g., how often do you lie to your friends?). While this strengthened the study by allowing us to capture lie-telling

more generally, it was also a limitation. The questions did not allow for an examination of what types of lies were told (antisocial vs. prosocial) and what topics were concealed. Based on previous research, we know adolescents lie more about prudential topics with age (Desmond & Kraus, 2012; Jensen et al., 2004; Knox et al., 2001; Warr, 2007). However, it is important to ask about lies in other domains that might be increasing and would speak to additional explanations for the developmental increase in dishonesty. Future studies on lie-telling would benefit from asking participants about lies in multiple domains, both prosocial and antisocial, to gain a greater understanding of what children and adolescents are lying about, and whether the types/topics of the lies they tell might change over time to better understand this developmental pattern.

As previously mentioned, self-report measures of daily lie-telling are preferable to other-reports or experimental methods. However, self-reports are vulnerable to socially desirable responding. Given that many people generally consider lies to be unacceptable, they may be underreporting the amount of lies they have told. Additionally, our measure of lie-telling asked participants to reflect on the previous year. Given that our sample was quite young (as young as 8 years old at T1), it may have been difficult for them to accurately recall the number of lies told in that time period. Participants may only be reporting the significant lies they told, as these may be easier to remember. Future studies should examine lie-telling in a more recent, limited time period to get a more accurate depiction of how often children and adolescents are telling lies. Additionally, the low reliability between the questions used to measure lying to parents may have impacted the ability to find associations between lying and the other variables at T2.

Finally, the conclusions made regarding the negative impact of dishonesty on relationships revolved around trust, and that trust is an important aspect of positive relationships. However, we measured overall relationship quality rather than trust specifically. Measuring both

trust and relationship quality would allow for an assessment of whether lie-telling influences relationship quality through its negative impact on trust. Future studies should examine this potential mediation model by asking participants about overall relationship quality in addition to obtaining a measure of trust in each relationship.

Future Directions

An important contribution to the literature from the current research is establishing a temporal order to the relation between dishonesty, relationship quality, and depression. Future research would benefit from following these variables across more than two time points to continue to examine the relation between lying, relationship quality, and depression over time throughout adolescence. For example, as discussed previously, the relationship between lie-telling and depression may be cyclical; following participants at additional time points would allow that cyclical relationship to be further explored.

Further research exploring the topics that children and adolescents are lying about would also be greatly beneficial. Research up to this point has examined lie-telling in one of two ways: either participants are asked about general rates of lie-telling, as in the current study, or they are asked specifically about lying to parents regarding prudential topics (e.g., parties, substance use). However, less is known about adolescents' lies in other areas such as academic performance or mental health. In studies where adolescents are asked whether they would lie to their parents in a given hypothetical scenario, they most frequently report that they would lie about scenarios in the personal domain, suggesting that adolescents may also be lying about issues like appearance (e.g., wearing makeup) or romantic relationships (Gingo et al., 2017; Rote & Smetana, 2014). Thus, exploration into other topics children and adolescents lie about is warranted. This is particularly important given that lying is increasing in the context of both parent and friend

relationships, and it is unlikely that the same types of lies are told across these contexts. Lies told to friends would not be about prudential issues; however, no research has explored the types of lies that are told in this context. Lies told to friends or peers may centre more around social variables and serve the purpose of obtaining social status. For example, adolescents may lie about their relationship or sexual experience to obtain social status. Asking about specific topics would provide insight into the types of lies adolescents are telling, how the types of lies differ based on the relationship and shed light on the motivations behind the developmental increase in dishonesty.

Finally, the results indicating that depression was related to relationship quality over time provide a potential area of intervention at these early ages. Parents, teachers, and clinicians could advise children and adolescents experiencing depressive symptoms to be honest about their experiences to gain support from the relationships that can provide it. Future research would benefit from further exploring whether children who experience depression are really lying specifically about their mood, or whether they are lying more in general across a variety of topics. This would further inform parents and clinicians on how to target lying in the context of depression to potentially prevent more serious mood disorders from developing later in life. Honestly reporting symptoms to those who can provide support may be a key factor in preventing early experiences of these symptoms from developing into more serious disorders.

Conclusion

Overall, this research supports the idea that lie-telling does increase with age during late-childhood and early adolescence, both in the context of parent-child relationship and friendships. Additionally, dishonesty towards parents, particularly keeping secrets, was bidirectionally associated with lower relationship quality over time. Greater depressive symptoms was

associated with lying more over time, to both parents and friends. These findings suggest that lie-telling is a prevalent behaviour during late-childhood and adolescence, and that it has important relations with both relationship quality and depression. Given the importance of these outcomes for positive development, lie-telling is a key behaviour to continue to examine at this developmental stage to identify why lie-telling is increasing and exactly how it is affecting and affected by various outcomes.

References

- Aalto-Setälä, T., Marttunen, M., Tuulio-Henriksson, A., Poikolainen, K., & Lönnqvist, J. (2002). Depressive symptoms in adolescence as predictors of early adulthood depressive disorders and maladjustment. *American Journal of Psychiatry*, *159*, 1235–1237. doi:10.1176/appi.ajp.159.7.1235
- Andrews, G., Hall, W., Teesson, M., & Henderson, S. (1999). *The mental health of Australians*. Canberra: Mental Health Branch, Commonwealth Department of Health and Aged Care.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, *16*, 427-454. doi:10.1007/BF02202939
- Bagwell, C. L., Bender, S. E., Andreassi, C. L., Kinoshita, T. K., Montarello, S. A., & Muller, J. G. (2005). *Journal of Social and Personal Relationships*, *22*, 235-254. doi:10.1177/0265407505050945
- Barney, L. J., Griffiths, K. M., Christensen, H., & Jorm, A. F. (2009). Exploring the nature of stigmatising beliefs about depression and help-seeking: Implications for reducing stigma. *BioMed Central Public Health*, *9*. doi:10.1186/1471-2458-9-61
- Barrera, M., & Garrison-Jones, C. (1992). Family and peer social support as specific correlates of adolescent depressive symptoms. *Journal of Abnormal Child Psychology*, *20*, 1-16. doi:10.1007/BF00927113
- Bauminger, N., Finzi-Dottan, R., Chason, S., & Har-Even, D. (2008). Intimacy in adolescent friendship: The roles of attachment, coherence, and self-disclosure. *Journal of Social and Personal Relationships*, *25*, 409-428. doi:10.1177/0265407508090866

- Berndt, T. J., & Keefe, K. (1995). Friends' influence on adolescents' adjustment to school. *Child Development, 66*, 1312-1329. doi:10.1111/j.1467-8624.1995.tb00937.x
- Berndt, T. J., & Perry, T. B. (1990). Distinctive features and effects of early adolescent friendships. In R. Montemayor, G. R. Adams, & T. P. Gullotta (Eds.), *Advances in adolescent development: An annual book series, Vol. 2.* (pp. 269-287). Thousand Oaks, CA, US: Sage Publications, Inc.
- Betts, L. R., Rotenberg, K. J., & Trueman, M. (2013). Young children's interpersonal trust consistency as a predictor of future school adjustment. *Journal of Applied Developmental Psychology, 34*, 310-318. doi:10.1016/j.appdev.2013.09.003
- Bok, S. (1989). *Secrets: On ethics of concealment and revelation.* New York, New York: Vintage Books.
- Cauce, A. M. (1986). Social networks and social competence: Exploring the effects of early adolescent friendships. *American Journal of Community Psychology, 14*, 607-628. doi:doi.org/10.1007/BF00931339
- Collins, W. A., Laursen, B., Mortensen, N., Luebker, C., & Ferreira, M.(1997). Conflict processes and transitions in parent and peer relationships: Implications for autonomy and regulation. *Journal of Adolescent Research, 12*, 178-198. doi:10.1177/0743554897122003
- Conley, T. D., Moors, A. C., Ziegler, A., & Feltner, M. R. (2011). Trust and satisfaction in adult child–mother (and other) relationships. *Basic and Applied Social Psychology, 33*, 239-254. doi:10.1080/01973533.2011.589311

- Costello, E. J., Erkanli, A., & Angold, A. (2006). Is there an epidemic of child or adolescent depression? *The Journal of Child Psychology and Psychiatry*, *47*, 1263-1271.
doi:10.1111/j.1469-7610.2006.01682.x
- Debey, E., De Schryver, M., Logan, G. D., Suchotzki, K., & Verschuere, B. (2015). From junior to senior Pinocchio: A cross-sectional lifespan investigation of deception. *Acta Psychologica*, *160*, 58-68. doi:10.1016/j.actpsy.2015.06.007
- Debnam, K. J., Howard, D. E., & Garza, M. A. (2014). "If you don't have honesty in a relationship, then there is no relationship": African American girls' characterization of healthy dating relationships, a qualitative study. *Journal of Primary Prevention*, *35*, 397-407. doi:10.1007/s10935-014-0362-3
- DePaulo, B. M., & Kashy, D. A. (1998). Everyday lies in close and casual relationships. *Journal of Personality and Social Psychology*, *74*, 63-79. doi:10.1037/0022-3514.74.1.63
- DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin*, *129*, 74-118. doi:10.1037/0033-2909.129.1.74
- Desmond, S. A., & Kraus, R. (2012). Liar, liar: Adolescent religiosity and lying to parents. *Interdisciplinary Journal of Research on Religion*, *8*(5), 1-26.
- Devine, D., Kempton, T., & Forehand, R. (1994). Adolescent depressed mood and young adult functioning: A longitudinal study. *Journal of Abnormal Child Psychology*, *22*, 629-640.
doi:10.1007/BF02168942
- Engels, R. C. M. E., Finkenauer, C., & Van Kooten, D. C. (2006). Lying behavior, family functioning and adjustment in early adolescence. *Journal of Youth and Adolescence*, *35*, 949-958. doi:10.1007/s10964-006-9082-1

- Ennis, E., Vrij, A., & Chance, C. (2008). Individual differences and lying in everyday life. *Journal of Social and Personal Relationships, 25*, 105-118.
doi:10.1177/0265407507086808
- Evans, A. D., Bender, J. & Lee, K. (2016). Can parents detect 8- to 16-year-olds' lies? Parental biases, confidence, and accuracy. *Journal of Experimental Child Psychology, 147*, 152-158. doi:10.1016/j.jecp.2016.02.011
- Evans, A. D., & Lee, K. (2011). Verbal deception from late childhood to middle adolescence and its relation to executive functioning skills. *Developmental Psychology, 47*, 1108-1116.
doi:10.1037/a0023425
- Evans, A. D., & Lee, K. (2013). Emergence of lying in very young children. *Developmental Psychology, 49*, 1958-1963. doi:10.1037/a00314091958
- Evans, A. D., & Lee, K. (2014). The relation between 8- to 17-year-olds' judgments of other's honesty and their own past honest behaviors. *International Journal of Behavioral Development, 38*, 277-281. doi:10.1177/0165025413517580
- Evans, A. D., Xu, F., & Lee, K. (2011). When all signs point to you: Lies told in the face of evidence. *Developmental Psychology, 47*, 39-49. doi:10.1037/a0020787
- Finkenauer, C., Engels, R. C. M. E., & Meeus, W. (2002). Keeping secrets from parents: Advantages and disadvantages of secrecy in adolescence. *Journal of Youth and Adolescence, 31*, 123-136. doi:10.1023/A:1014069926507
- Finkenauer, C. Frijns, T., Engels, R. C. M. E., & Kerkhof, P. (2005). Perceiving concealment in relationships between parents and adolescents: Links with parental behavior. *Personal Relationships, 12*, 387-406. doi:10.1111/j.1475-6811.2005.00122.x

- Finkenauer, C., & Rimé, B. (1998). Socially shared emotional experiences vs. emotional experiences kept secret: Differential characteristics and consequences. *Journal of Social and Clinical Psychology, 17*, 295-318. doi:10.1521/jscp.1998.17.3.295
- Frijns, T., Finkenauer, C., Vermulst, A. A., & Engels, R. C. M. E. (2005). Keeping secrets from parents: Longitudinal associations of secrecy in adolescence. *Journal of Youth and Adolescence, 34*, 137-148. doi:10.1007/s10964-005-3212-z
- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development, 63*, 103-115. Doi:10.1111/j.1467-8624.1992.tb03599.x
- Gervais, J., Tremblay, R. E., Desmarais-Gervais, L., & Vitaro, F. (2000). Children's persistent lying, gender differences, and disruptive behaviours: A longitudinal perspective. *International Journal of Behavioral Development, 24*, 213-221. doi:10.1080/016502500383340
- Gingo, M., Roded, A. D., & Turiel, E. (2017). Authority, autonomy, and deception: Evaluating the legitimacy of parental authority and adolescent deceit. *Journal of Research on Adolescence, 27*, 862-877. doi:10.1111/jora.12319
- Gongola, J., Scurich, N., & Quas, J. A. (2017). Detecting deception in children: A meta-analysis. *Law and Human Behavior, 41*, 44-54. doi:10.1037/lhb0000211
- Gould, M. S., Velting, D., Kleinman, M., Lucas, C., Thomas, J. G., & Chung, M. (2004). Teenagers' attitudes about coping strategies and help-seeking behaviour for suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*, 1124-1133. doi:10.1097/01.chi.0000132811.06547.31

- Greenberg, M. T., Siegel, J. M., & Leitch, C. J. (1983). The nature and importance of attachment relationships to parents and peers during adolescence. *Journal of Youth and Adolescence*, *12*, 373-386. doi:10.1007/BF02088721
- Helwig, C. C., & Jasiobedzka, U. (2001). The relation between law and morality: Children's reasoning about socially beneficial and unjust laws. *Child Development*, *72*, 1382-1393. doi:10.1111/1467-8624.00354.
- Herman-Stahl M., & Peterson, A. C. (1996). The protective role of coping and social resources for depressive symptoms among young adolescents. *Journal of Youth and Adolescence*, *25*, 733-753. doi:10.1007/BF01537451
- Hu, C., Huang, J., Wang, Q., Weare, E., & Fu, G. (2019). Development of verbal strategies for lying among children and adolescents. doi:10.31219/osf.io/gwxam
- Jang, S. A., Smith, S., & Levine, T. (2002). To stay or to leave? The role of attachment styles in communication patterns and potential termination of romantic relationships following discovery of deception. *Communication Monographs*, *69*, 236-252. doi:10.1080/03637750216543
- Jensen, L. A., Arnett, J. J., Feldman, S. S., & Cauffman, E. (2004). The right to do wrong: Lying among adolescents and emerging adults. *Journal of Youth and Adolescence*, *33*, 101-112. doi:10.1023/B:JOYO.0000013422.48100.5a
- Jones, J. D., Ehrlich, K. B., Lejuez, C. W., & Cassidy, J. (2015). Parental knowledge of adolescent activities: Links with parental attachment style and adolescent substance use. *Journal of Family Psychology*, *29*, 191-200. doi:10.1037/fam0000070

- Kashubeck, S., & Christensen, S. A. (1995). Parental alcohol use, family relationship quality, self-esteem, and depression in college students. *Journal of College Student Development*, 36(5), 431-443.
- Kashy, D. A. & DePaulo, B. M. (1996). Who Lies? *Journal of Personality and Social Psychology*, 70, 1037-1051. doi:10.1037/0022-3514.70.5.1037
- Kelly, A. E. (2002). *The psychology of secrets*. New York: Plenum
- Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology*, 36, 366-380. doi:10.1037/0012-1649.36.3.366
- Kerr, M., Stattin, H., & Trost, K. (1999). To know you is to trust you: parents' trust is rooted in child disclosure of information. *Journal of Adolescence*, 22, 737-752.
doi:10.1006/jado.1999.0266
- Kerr, M., Stattin, H., & Burk, W. J. (2010). A reinterpretation of parental monitoring in longitudinal perspective. *Journal of Research on Adolescence*, 20, 39-64.
doi:10.1111/j.1532-7795.2009.00623.x
- Kim, J., & Cicchetti, D. (2004). A longitudinal study of child maltreatment, mother-child relationship quality and maladjustment: The role of self-esteem and social competence. *Journal of Abnormal Child Psychology*, 32, 341-354.
doi:10.1023/B:JACP.0000030289.17006.5a
- Knox, D., Zusman, M. E., McGinty, K., & Gescheidler, J. (2001). Deception of parents during adolescence. *Adolescence*, 36(143), 611-614.

- La Greca, A. M., & Harrison, H. M. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology, 34*, 49-61. doi:10.1207/s15374424jccp3401_5
- Laible, D. (2007). Attachment with parents and peers in late adolescence: Links with emotional competence and social behavior. *Personality and Individual Differences, 43*, 1185-1197. doi:10.1016/j.paid.2007.03.010
- Laird, R. D., & Marrero, M. D. (2010). Information management and behavior problems: Is concealing misbehavior necessarily a sign of trouble? *Journal of Adolescence, 33*, 297-308. doi:10.1016/j.adolescence.2009.05.018
- Lane, J. D., & Wegner, D. M. (1995). The cognitive consequences of secrecy. *Journal of Personality and Social Psychology, 69*, 237-253. doi:10.1037/0022-3514.69.2.237
- Lavoie, J., Nagar, P. M., & Talwar, V. (2017). From Kantian to Machiavellian deceivers: Development of children's reasoning and self-reported use of secrets and lies. *Childhood, 24*, 197-211. doi:10.1177/0907568216671179
- Leduc, K., Williams, S., Gomez-Garibello, C., & Talwar, V. (2017). The contributions of mental state understanding and executive functioning to preschool-aged children's lie-telling. *British Journal of Developmental Psychology, 35*, 288-302. doi:10.1111/bjdp.12163
- Levine, T. R., Serota, K. B., Carey, F., & Messer, D. (2013). Teenagers lie a lot: A further investigation into the prevalence of lying. *Communication Research Reports, 30*, 211-220. doi:10.1080/08824096.2013.806254
- Logan, D. E., & King, C. A. (2001). Parental facilitation of adolescent mental health service utilization: a conceptual and empirical review. *Clinical Psychology: Science and Practice, 8*, 319-333. doi:10.1093/clipsy.8.3.319

- Marshall, S. D., Tilton-Weaver, L. C., & Bosdet, L. (2005). Information management: Considering adolescents' regulation of parental knowledge. *Journal of Adolescence, 28*, 633-647. doi:10.1016/j.adolescence.2005.08.008
- Mayeux, L., & Kraft, C. (2017). Social goals moderate the associations between peer status and behavior in middle school. *Social Development, 27*, 699-714. doi:10.1111/sode.12298
- McCornack, S. A., & Levine, T. R. (1990). When lies are uncovered: Emotional and relational outcomes of discovered deception. *Communication Monographs, 57*, 119-138.
- Nickerson, A. B., & Nagle, R. J. (2005). Parent and peer attachment in late childhood and early adolescence. *The Journal of Early Adolescence, 25*, 223-249.
doi:10.1177/0272431604274174
- Oldenberg, C. M., & Kerns, K. A. (1997). Associations between peer relationships and depressive symptoms: testing moderator effects of gender and age. *The Journal of Early Adolescence, 17*, 319-337. doi:10.1177/0272431697017003004
- Olthof, T., & Goossens, F. A. (2008). Bullying and the need to belong: Early adolescents' bullying-related behavior and the acceptance they desire and receive from particular classmates. *Social Development, 17*, 24-46. doi:10.1111/j.1467-9507.2007.00413.x
- Overton, S. L., & Medina, S. L. (2008). The stigma of mental illness. *Journal of Counselling and Development, 86*, 143-151. doi:10.1002/j.1556-6678.2008.tb00491.x
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology, 29*, 611-621. doi:10.1037/0012-1649.29.4.611
- Paykel, E. S. (1994). Life events, social support, and depression. *Acta Psychiatrica Scandinavica, 89*, 50-58. doi:10.1111/j.1600-0447.1994.tb05803.x

Peer (n.d.). In Merriam-Webster's collegiate dictionary. Retrieved from <https://www.merriam-webster.com/dictionary/peer>.

Pescosolido, B. A., Perry, B. L., Martin, J. K., McLeod, J. D., & Jensen, P. S. (2007).

Stigmatizing attitudes and beliefs about treatment and psychiatric medications for children with mental illness. *Psychiatric Services*, *58*(5), 613–618.

Pennebaker, J. W. (1989). Confession, inhibition, and disease. *Advances in Experimental Social Psychology*, *22*, 211-244. doi:10.1016/S0065-2601(08)60309-3

Pennebaker, J. W., & Susman, J. R. (1988). Disclosure of traumas and psychosomatic processes. *Social Science & Medicine*, *26*, 327-332. doi:10.1016/0277-9536(88)90397-8

Perry, B. L., Pescosolido, B. A., Martin, J. K., McLeod, J. D., & Jensen, P. S. (2007).

Comparison of public attributions, attitudes, and stigma in regard to depression among children and adults. *Psychiatric Services*, *58*(5), 632-635.

Popliger, M., Talwar, V., & Crossman, A. (2011). Predictors of children's prosocial lie-telling: Motivation, socialization variables, and moral understanding. *Journal of Experimental Child Psychology*, *110*, 373-392. doi:10.1016/j.jecp.2011.05.003

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385-401.

doi:10.1177/014662167700100306

Rote, W. M., & Smetana, J. G. (2014). Acceptability of information management strategies:

Adolescents' and parents' judgments and links with adjustment and relationships. *Journal of Research on Adolescence*, *25*, 490-505. doi:10.1111/jora.12143

- Rote, W. M., & Smetana, J. G. (2015). Beliefs about parents' right to know: Domain differences and associations with change in concealment. *Journal of Research on Adolescence, 26*, 334-344. doi:10.1111/jora.12194
- Rotenberg, K. J. (1994). Loneliness and interpersonal trust. *Journal of Social and Clinical Psychology, 13*(2), 152-173. doi:10.1521/jscp.1994.13.2.152
- Rotenberg, K. J., & Boulton, M. (2013). Interpersonal trust consistency and the quality of peer relationships during childhood. *Social Development, 22*, 225-241. doi:10.1111/sode.12005
- Sagarin, B. J., Rhoads, K. V. L., & Cialdini, R. B. (1998). Deceiver's distrust: Denigration as a consequence of undiscovered deception. *Personality and Social Psychology Bulletin, 24*, 1167-1176. doi:10.1177/01461672982411004
- Saluja, G., Iachan, R., Scheidt, P. C., Overpeck, M. D., Sun, W., & Geidd, J. N. (2004). Prevalence of risk factors for depressive symptoms among young adolescents. *Archives of Pediatrics and Adolescent Medicine, 158*, 760-765. doi:10.1001/archpedi.158.8.760
- Serota, K. B., Levine, T. R., & Boster, F. J. (2010). The prevalence of lying in America: Three studies of self-reported lies. *Human Communication Research, 36*, 2-25. doi:10.1111/j.1468-2958.2009.01366.x
- Shulman, S., Laursen, B., Kalman, Z., & Karpovsky, S. (1997). Adolescent intimacy revisited. *Journal of Youth and Adolescence, 26*, 597-617. doi:10.1023/A:1024586006966
- Sirey, Bruce, Alexopoulos, Perlick, Friedman, & Meyers, 2001. Stigma as a barrier to recovery: Perceived stigma and patient-rated severity of illness as predictors of antidepressant drug adherence. *Psychiatric Services, 52*(12), 1615-1620. doi:10.1176/appi.ps.52.12.1615

- Smetana, J. G. (1995). Parenting styles and conceptions of parental authority during adolescence. *Child Development, 66*, 299-316. doi:10.1111/j.1467-8624.1995.tb00872.x
- Smetana, J. G., Villalobos, M., Tasopoulos-Chan, M., Gettman, D. C., & Campione-Barr, N. (2009). Early and middle adolescents' disclosure to parents about activities in different domains. *Journal of Adolescence, 32*, 693-713. doi:10.1016/j.adolescence.2008.06.010
- Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology, 42*, 305-318. doi:10.1037/0012-1649.42.2.305
- Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development, 71*, 1072-1085. doi:10.1111/1467-8624.00210
- Steinberg, L. (2010). A dual systems model of adolescent risk-taking. *Developmental Psychobiology, 52*, 216-224. doi:10.1002/dev.20445
- Stice, E., Ragan, J., & Randall, P. (2004). Prospective relations between social support and depression: differential direction of effects for parent and peer support? *Journal of Abnormal Psychology, 113*, 155-159. doi:10.1037/0021-843X.113.1.155
- Stouthamer-Loeber, M., & Loeber, R. (1986). Boys who lie. *Journal of Abnormal Child Psychology, 14*, 551-564. doi:10.1007/BF01260523
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York, New York: Norton.
- Talwar, V., Gordon, H. M., & Lee, K. (2007). Lying in the elementary school years: Verbal deception and its relation to second-order belief understanding. *Developmental Psychology, 43*, 804-810. doi:10.1037/0012-1649.43.3.804

- Talwar, V., & Lee, K. (2002). Social and cognitive correlations of children's lying behavior. *Child Development, 79*, 866-881. doi:10.1111/j.1467-8624.2008.01164.x
- Talwar, V., & Lee, K. (2008). Social and cognitive correlates of children's lying behavior. *Child Development, 79*, 866-881. doi:10.1111/j.1467-8624.2008.01164.x
- Talwar, V., Renaud, S. J., & Conway, L. (2015). Detecting children's lies: Are parents accurate judges of their own children's lies? *Journal of Moral Education, 44*, 81-96. doi:10.1080/03057240.2014.1002459
- Thomas, J. J., & Daubman, K. A. (2001). The relationship between friendship quality and self-esteem in adolescent girls and boys. *Sex Roles, 45*, 53-65. doi:10.1023/A:1013060317766
- Turiel, E. (1983). *The development of social knowledge: Morality and convention*. Cambridge: Cambridge University Press.
- Turiel, E. (2002). *The culture of morality: Social development, context, and conflict*. New York, NY, US: Cambridge University Press. doi:10.1017/CBO9780511613500
- Tyler, J. M., Feldman, R. S., & Reichert, A. (2006). The price of deceptive behavior: Disliking and lying to people who lie to us. *Journal of Experimental Social Psychology, 42*, 69-77
- Villalobos Solis, M., Smetana, J. G., & Comer, J. (2015). Associations among solicitation, relationship quality, and adolescents' disclosure and secrecy with mothers and best friends. *Journal of Adolescence, 43*, 193-205. doi:10.1016/j.adolescence.2015.05.016
- Warr, M. (2005). The tangled web: Delinquency, deception, and parental attachment. *Journal of Youth and Adolescence, 36*, 607-622. doi:10.1007/s10964-006-9148-0
- Weissman, M. M., Orvaschel, H., & Padian, N. (1980). Children's symptom and social functioning self-report scales: Comparison of mothers' and children's reports. *The*

- Journal of Nervous and Mental Disease*, 168, 736-740. doi:10.1097/00005053-198012000-00005
- Wenz-Gross, M., Siperstein, G. N., Untuch, A. S., & Widaman, K. F. (1997). Stress, social support, and adjustment of adolescents in middle school. *The Journal of Early Adolescence*, 17, 129-151. doi:10.1177/0272431697017002002
- Williams, A. (2003). Adolescents' relationships with parents. *Journal of Language and Social Psychology*, 22, 58-65. doi:10.1177/0261927X02250056
- Williams, S., Leduc, K., Crossman, A., & Talwar, V. (2017). Young deceivers: Executive functioning and antisocial lie-telling in preschool aged children. *Infant and Child Development*, 26, 1-17. doi:10.1002/icd.1956
- Williams, S., Moore, K., Crossman, A. M., & Talwar, V. (2016). The role of executive functions and theory of mind in children's prosocial lie-telling. *Journal of Experimental Child Psychology*, 141, 256-266. doi:10.1016/j.jecp.2015.08.001
- Willoughby, T., Heffer, T., & Hamza, C. A. (2015). The link between nonsuicidal self-injury and acquired capability for suicide: A longitudinal study. *Journal of Abnormal Psychology*, 124, 1110-1115. doi:10.1037/abn0000104
- Windle, M. (1994). A study of friendship characteristics and problem behaviors among middle adolescents. *Child Development*, 65, 1764-1777. doi:10.1111/j.1467-8624.1994.tb00847.x
- Wisdom, J. P., Clarke, G. N., Green, C. A. (2006). What teens want: Barriers to seeking care for depression. *Administration and Policy in Mental Health and Mental Health Services Research*, 33, 133-145. doi:10.1007/s10488-006-0036-4

Appendix A

Lie-Telling Measure

1. Since the beginning of summer last year, how often have you done the following?

a. Lied to your parents about something important

b. Lied to your friends

Never Once Two to five Six to nine times 10 or more times
times

2. Since the beginning of summer last year, how often have you done the following?

a. Told a lie to one of your parents

0 times 1 to 2 times 3 to 4 times 5 to 10 times 10 or more times
(never)

Appendix B

Secret-Keeping

How often do you do the following?

1. Keep a lot of secrets from your parents about how school is going
2. Keep a lot of secrets from your parents about what you do during your free time.

Almost never

Sometimes

Often

Almost always

Appendix C

Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987)

Think about your mother/stepmother (female guardian) and father/stepfather (male guardian) whom you live with the MOST and answer these questions. If you have NO contact with your mother/stepmother or female guardian, don't answer these questions (same with your father/stepfather or male guardian).

My mother/father:

- a. Understands me
- b. Cares about my point of view
- c. Can tell when I am upset
- d. Gives me lots of attention
- e. Expects too much from me
- f. Accepts me as I am
- g. Makes me feel bad when I talk about my problems

Almost never

Sometimes

Often

Almost always

Think about your friends and answer the following questions:

My friends:

- a. Accept me as I am
- b. Understand me
- c. Care about my point of view
- d. Can tell when I'm upset about something
- e. Gives me lots of attention
- f. Expect too much from me

- g. Have their own problems, so I don't bother them with mine
- h. Make me feel ashamed or foolish when I talk about my problems
- i. Are easy to talk to
- j. Are concerned about my well-being

Almost never

Sometimes

Often

Almost always

Appendix D

Depression (Radloff, 1977; Weissman et al., 1980)

Fill in the answer that best describes how often you felt this way during the past week.

- a. I was happy
- b. I felt like I couldn't pay attention to what I was doing
- c. I didn't sleep as well as I usually sleep
- d. I was bothered by things that usually don't bother me
- e. I was more quiet than usual
- f. I felt lonely, like I didn't have any friends
- g. I felt sad

Not at all

A little bit of time

A medium amount

A lot of the time