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Dyadic Friendship Interactions and Emotional Adjustment in Adolescents

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DYADIC FRIENDSHIP INTERACTIONS AND EMOTIONAL ADJUSTMENT IN

ADOLESCENTS

by

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Abstract

Social interactions during childhood and adolescence contribute significantly to social and emotional adjustment. A primary source of social interaction for adolescents comes in the form of friends. Friendship functioning is thought to contribute to both relationship quality and emotional adjustment, such as depressive symptoms (Bukowski; Hoza, & Boivin, 1994; Demir & Urberg, 2004). However few studies have addressed how non-verbal interpersonal engagement may contribute to relationship quality and emotional adjustment in adolescent friendships. The current study examined associations of non-verbal interpersonal engagement in the context of adolescents' same-sex friendships with self-reported friendship quality and depressive symptoms. The role of gender in these relations (see Rose & Rudolph, 2006) also was explored. Multilevel modeling was used to test all study hypotheses. Results suggested that non-verbal interpersonal engagement contributed significantly to positive, but not negative, friendship quality. Associations of interpersonal engagement with depressive symptoms were largely non-significant. Few gender differences emerged, perhaps because the study was underpowered to detect them. Additional limitations as well as future directions for research are discussed.

Acknowledgements

Introduction

Friendships in Adolescence

Friendships are an integral part of human development (Cillessen, Jiang, West, & Laszkowski, 2005). Numerous developmental theories emphasize the importance of friendship. One of the most influential is Sullivan's Interpersonal Theory of Psychiatry (Sullivan, 1953). This theory explains that socializing with others helps shape our personalities through positive and negative interactions. Positive interactions lead to reinforcement of favorable traits, and, conversely, negative reactions lead to a change in undesirable traits (Sullivan, 1953). One specific provision of social relationships highlighted by Sullivan was that of intimacy. In particular, Sullivan hypothesized that intimacy was a basic human need and that intimacy originated from close, social interactions (Sullivan, 1953). Sullivan discussed that humans achieve a need for intimacy through various social relationships across their lifespan such as those with parents, caregivers, peers, and romantic partners.

Indeed, youth are primarily socialized by the relationships in which they spend the most time. During childhood, parents have the greatest amount of contact with the child. As youth transition to the period of adolescence, peers become the primary socialization agents, and parents' socialization role diminishes somewhat (Papini et al., 1990). Adolescents spend more time with friends than parents, siblings, or others (Steinberg, 2017). Increased participation in after school activities, increased time spent "hanging out" with friends, and increased electronic communication all contribute to a higher level of interaction with peers. The desire to spend time with peers as opposed to parents is also driven by an adolescent's need for independence (Douvan & Adelson,

1966). During this period, youth believe that they are beginning to know more about life and may feel that they should be able to take on a larger role to control their own lives. These ideas tend to contrast with those of parents who may feel that they should still have control over their children. Contradictory beliefs regarding adolescents' autonomy can lead to significant conflict in the parent-child relationship (Steinberg, 2017), which perhaps may also drive adolescents to spend increased time with peers.

Intimacy derived from friendship is particularly important during the developmental period of adolescence (Sullivan, 1953). Friendship intimacy is essential to the development of adolescents' identity, and friendships are one context in which adolescents learn the social skills needed to navigate themselves in the world (Sullivan, 1953). In this context, socialization may occur through adolescents' comparison of themselves to peers and also through peer pressure. Peer pressure becomes a consistent factor in every adolescent's life as they question their appearance, friendships, conversations, actions, and ultimately how each of these are perceived by their peers. The manner in which adolescents reflect on and answer these questions forms the basis of the adolescent's personality, thus further underscoring friends as elemental to the emotional and social development of adolescents (Markievicz et al., 2001).

Interestingly, adolescents tend to choose friends who are somewhat similar to themselves (Cillessen et al., 2005) and tend to become more similar to their friends across time (Kandel, 1978). The pool of available peers increases at the transition from elementary to middle school, and again at the transition from middle to high school. Adolescents can be more selective, enabling them to choose friends who are increasingly similar to themselves. As friends spend more time together, they are thought to become

even more similar to one another, via socialization processes (Kandel, 1978). Increased similarity in friends during the period of adolescence is thought to enable these friendships to withstand larger amounts of conflict and to solidify these relationships as more long-lasting than childhood friendships. On average, 70% of adolescent friendships last a year or more (Steinberg, 2017).

The benefits of friendships for adolescent adjustment are numerous. Positive perceptions of friendships tend to result in greater social and emotional benefits for the adolescent. According to Parker and Asher (1993), there are at least six major qualities associated of friendship—five positive and one negative. The first is validation and caring. Validation and caring is the amount of support friends provide for each other, as well as the amount of interest members show in one another. Companionship and recreation reflect another positive quality needed in a friendship. Two members of a dyad must spend quality time engaging in activities that both parties find enjoyable. Friends also tend to give each other help and guidance. This third quality suggests that a friend should aid the other in both menial and demanding tasks without complaint. A fourth quality is intimate exchange. This means that members of a friendship dyad self-disclose personal feelings and information to create a strong bond. Resolution of conflict is a fifth positive aspect off friendship. Healthy relationships allow for arguments to be resolved quickly, and fairly, as unfair resolutions can lead to negative feelings between the dyad. A sixth quality reflects a negative aspect of friendship, conflict and betrayal. Arguments, lack of trust, and annoyance towards the other person may characterize a relationship with a high level of conflict and betrayal. High quality friendships are

thought to have high levels of these positive aspects and low levels of negative aspects (e.g., conflict).

As mentioned, high quality friendships are often characterized by high levels of self-disclosure within the dyad and high levels of responsiveness from each partner (Gauze, Bukowski, Aquan-Assee, & Sippola, 1996). Self-disclosure and responsiveness are thought to comprise one of the most significant benefits observed in adolescent friendships that yield high levels of emotional support (Markievicz et al., 2001). When friends provide support and comfort through various means (e.g., direct conversations about problems, conversations during physical activities such as sports), this results in a general sense of belonging (Markievicz et al. 2001). Such close interactions among friends aid in the formation of social problem solving skills and interpersonal competence (Markievicz et al., 2001; Demir & Urberg, 2004).

Perhaps not surprisingly, adolescents with friends have higher academic adjustment, lower rates of delinquency (Windle, 1994), and higher self-esteem (Townsend, McCracken, & Wilton, 1988). Conceivably this is due to the ability of friendships to lend support, help solve problems, and contribute to feeling of being connected.

It follows then that research indicates that good friendship functioning is linked with adolescents' positive emotional adjustment. For example, the quality of a friendship appears to be related to emotional functioning such that adolescents with higher quality friendships tend to have better emotional adjustment (Demir & Urberg, 2003; Markievicz et al., 2001). The next section discusses more specifically the topic of emotional

adjustment in adolescence, before reviewing in more detail the link between friendship and emotional adjustment.

Emotional Adjustment in Adolescence

Emotional adjustment is defined as the ability to remain in emotional equilibrium when faced with adverse situations, which can be internal or external (Cole, Mitchell, & Teti, 1994). High levels of emotional adjustment are associated with better emotional coping skills and emotional control (Cole et al., 1994). Unfortunately, not all adolescents experience healthy emotional adjustment. Indeed, some adolescents experience significant emotional adjustment problems. Poor emotional adjustment is associated with a multitude of problems such as a lack of intimate friendships, serious health concerns, and depression (Demir & Urberg, 2004).

Approximately 7-8% of adolescents are diagnosed with clinical depression (Schwartz-Mette et al., 2016), which is a steep increase from the prevalence rate in childhood of 1-2% (Costello et al. 2003). Symptoms of depression include: persistent empty or sad mood, feeling hopeless and/or guilty, loss of interest, decreased energy, difficulty concentrating, memory problems, difficulty making decisions, insomnia (any form), decreased or increased appetite, restlessness, irritability, and unexplained physical symptoms that do not respond to treatment (American Psychiatric Association, 2013). Sadly, many adolescents who experience significant levels of depression never receive professional treatment for their disorder (Merikangas, Nakamura, & Kessler 2009). Depression, especially when left untreated, can place those affected at greater risk for a variety of problems that span many dimensions of life.

In particular, depressive symptoms can significantly impact the daily functioning of the individual. Depression can interfere with job performance, social interactions, academic success, and family life (Thapar et al., 2012). Academic success is especially important during the period of adolescence because education can play a significant role in the individual's future. Those affected begin to suffer from poor school attendance, falling grades, lower levels of achievement, and less satisfaction from academic success (Roeser, Eccles, & Strobel, 1998).

Depression can cause an increased risk for other health problems. Regarding emotional health, depression places youth at risk for additional psychological issues such as anxiety, substance use and addiction, bipolar disorder, suicidality, attention problems, and conduct problems (Costello et al., 2006; Thapar et al., 2012). Depressed individuals also have an increased risk for numerous physical ailments, such as cardiovascular disease, depressed immune function, increased levels of cortisol, and long-term changes in brain chemistry, among others (Moussavi et al., 2007). Depressed youth have a greater chance of reoccurrence of depressive episodes following the cessation of the first episode (Dunn & Goodyer, 2006). Affected adolescents also have a much greater chance of depression in adulthood (Birmaher et al., 1996).

As noted, adolescents are at an especially increased risk for developing depression. Multiple etiological factors have physiological, cognitive, behavioral, and interpersonal origins. Physiological stressors in adolescence are largely due to puberty. Hormones are fluctuating rapidly during puberty, and these variations contribute to adolescents' cycling moods (Giedd, 2008). These changes in hormones may also result in changes to the reward system of the brain. Enjoyable events may no longer bring as

much excitement, which could cause a decrease in positive reinforcement of activities that may protect youth against developing emotional adjustment problems (e.g., social interactions, organized activities).

An atypically-timed puberty may increase risk for depression in both genders (Kaltiala-Heino, Kosunen, & Rimpela, 2003). Girls who undergo early puberty may receive sexualized attention from peers that they are not emotionally equipped to handle. These females may also receive negative attention from other females who are jealous of the sexual attention the early maturing females receive. Boys who experience puberty late also are at increased risk for depression. These boys are typically shorter than other male members of their peer group during the beginning of adolescence, which may lead to negative social comparisons and/or teasing. Physical violence against pre-pubescent boys also is a common occurrence and further increases the risk for depression (Boivin, Poulin, & Vitaro, 1994).

Many cognitive changes at adolescence contribute to the increased risk for depression. Beliefs about the self begin to change during the period of adolescence. For example, negative beliefs about the self (perhaps via social comparison with peers) can begin to occur, which increases the likelihood of developing depression (McCauey, Mtchell, Burke, & Moss, 1988). The negative beliefs can extend to others, leading to maladaptive cognitive patterns associated with internalization problems, negative affect, and an external locus of control (McCauey et al., 1988). For example, rumination (i.e., thinking excessively about problems) predicts greater risk and severity of depressive symptoms (Abela, Brozina, & Haigh, 2002). Low self-esteem (Hoffman et al., 2000) and high self-criticism also increase depressive symptoms (Abela, Sakellaropoulo & Taxel,

2007). These negative attributes and thinking patterns are thought to contribute to a greater depressed affect (Moussavi et al., 2007).

With regard to interpersonal risk factors, adolescents experience extreme changes in their social sphere. Interpersonal problems are increasingly present at adolescence, partly due to large changes in many aspects of an adolescent's life including: increased social status concerns, expansion of the size and diversity of the peer group, entrance in the workforce, higher academic pressure, greater familial conflict, and both physical and cognitive changes that accompany puberty (Stice et al., 2001). Transitioning through grades and schools typically leads to larger numbers of students in each classroom and school. A feeling of depersonalization can emerge as each individual seems to matter less in the crowd of people (Steinberg, 2017). Adolescents may also feel the "top-dog effect" which comes from dropping to the bottom of the social hierarchy as new high school students when they were previously at the top in junior high (Steinberg, 2017).

Adolescents also may feel increased pressure in the academic setting as things "begin to count." Grades in high school, as well as which classes one takes, will be seen when applying to college. Which activities one chooses to participate in will help shape who the peer group is, in addition to "looking good" on college applications. Increased conflict in the child-parent relationship becomes present. This is due the adolescent's need for autonomy that emerges in the beginning of adolescence as mentioned previously.

With such a significant increase in stress, adolescents may experience a decreased ability to cope as compared to younger children. Younger children may be better able to cope with problems due to their ability to seek emotional support from their parents or

older adults (Hampel & Petermann, 2006). As they age, youth may seek less and less external support and may internalize problems. They may also turn to interpersonal behaviors such as negative feedback seeking and excessive reassurance seeking which, although perhaps an attempt to feel better, can lead to increased depressive symptoms (Timmons & Joiner, 2008).

Friendship and Emotional Adjustment

Perhaps not surprisingly, given the centrality of both to the period of adolescence, research has demonstrated a strong link between adolescents' friendship functioning and emotional adjustment. As noted previously, high-quality friendships offer adolescents many benefits including higher self-esteem, better emotional-adjustment, a heightened ability to cope with stress, decreased loneliness, and lower levels of delinquency (Cillessen et al., 2005; Demir & Urberg, 2003). For each of these benefits, the higher the perceived quality of friendship, the greater positive effects (Cillessen et al., 2005).

One potential mechanism at work in the association between adolescents' friendship quality and emotional adjustment might be adolescents' self-disclosure with friends. Self-disclosure involves sharing personal thoughts and feelings and can be about positive, negative, or even neutral topics (Rose, 2002). Self-disclosure to peers increases at adolescence (Furman & Buhrmester, 1992). Self-disclosing with a friend about problems allows the adolescent to seek advice from someone of their own age. Adolescents may trust this advice more than the advice that would come from an adult because they feel as though their friends are the only people who may understand. Many of the issues adolescents face are topics they may not feel comfortable discussing with a

parent or adult Instead, they may feel more comfortable discussing these with someone their own age (Papini et al., 1990).

Self-disclosure about positive events may allow adolescents to receive positive feedback from their friends regarding events occurring in their lives. Positive encouragement may lead to reinforcement of positive behaviors and thus, lead to more of the positive feelings associated with the event. Through self-disclosure about problems, adolescents may offer one another support, which can make friends feel closer to one another. In fact, self-disclosure of problems with a friend is linked to positive qualities such as helping and companionship (Townsend, McCracken, & Wilton, 1988).

Subtypes of self-disclosure have been identified in the literature, including excessive self-disclosure about negative events. In fact, some adolescents may excessively discuss problems with friends, which is a process that has been referred to as co-rumination (Rose, 2002). Co-rumination is defined as "frequently discussing problems, discussing the same problem repeatedly, mutual encouragement of discussing problems, and focusing on negative feelings" (Rose, 2002, p. 1830). Co-rumination is associated with increased feelings of closeness between the dyad, as well as increased helping and comforting behaviors (Rose, 2002). Interestingly, co-rumination is also associated with higher levels of depression and anxiety (in females only) (Stone et al., 2011). The increased level of depression could be attributed to the rehashing of negative problems. Focusing on the negative aspects of issues and being encouraged to think negatively about a problem can lead to a generally negative mood.

Friendships that are low in positive quality have also been linked with depression (Windle, 1994). Adolescents who report poor quality friendships or an absence of

friendship report increased levels of depressive symptoms and have greater negative affect when compared to their non-depressed peers (Rubin, Bukowski, & Parker, 1988). It may be that the absence of positive qualities such as validation, intimacy, companionship, and guidance lead youth to feel lonely, thus resulting in depressive symptoms.

Low levels of positive quality in friendships may also be associated with higher levels of negative friendship qualities, such as conflict (Parker & Asher, 1993). Conflict in friendship can be verbal or physical. Such negative aspects of friendship quality can lead to increased feelings of loneliness, negative affect, and depressive symptoms (Demir & Urbeg, 2003), potentially due to negativity within an adolescent's most important social bond.

Perhaps ironically, the presence of depression in adolescence can also hinder the quality of a friendship. Thus, a bidirectional effect is seen between depression and friendship (Demir & Urbeg, 2003). Adolescents who are depressed do not seem to be as well liked by peers (Boivin et al., 1995). Depressed teens may not seem as open and welcoming to prospective friends and they may drive away friends with their dampened mood and increased talk of negative events (Joiner & Coyne, 1993).

The Role of Gender

Issues of gender are central to understanding friendship and emotional adjustment in adolescence. The following section reviews gender differences in friendship experiences, emotional adjustment, and the associations of friendship with emotional adjustment in adolescence.

Gender Differences in Friendship Experiences

As children age, the push for sexually dimorphic behavior become especially intense as physical changes of puberty manifest in outward differences between the sexes (Geary, 1998). These differences may be based on both biological phenomena (Goodyer et al., 2001; Snores & Matsumoto, 2014) and early socialization from caregivers (Rose & Rudolph, 2006). Adolescents tend to want to be friends with other adolescents who show strong sex-typical behavior (Hibbard & Buhrmester, 1998). Such strong differences in behavior between the sexes lead to gender becoming a moderator for many aspects of peer interactions.

Girls report higher levels positive friendship quality and more benefits from their friendships than boys (Bukowski et al., 1994). In particular, girls report completing and receiving more prosocial acts than do boys (Rubin, Bukowski, & Parker, 1988). Higher levels of empathy and sensitivity are present in female friendships (Storch, Sweeney, Danner, & Dove, 2002). Girls report greater valuing of dyadic friendships and place a higher value on social goals than do boys (Ford, 1982). Females worry about expressing any type of anger to their friends fearing it may cause negative social repercussions (Blatt et al., 1993).

Interestingly, along with the increased positive aspects of girls' friendships, higher levels of many negative aspects are experienced. Girls tend to worry about abandonment of friends when the possibility is unlikely to occur, and girls tend to be hurt emotionally by friends more than boys (Rose & Rudolph, 2006). One reason may be that boys have greater self-interest in their friendships, as evidenced perhaps by boys being

more likely to seek revenge against their friends when they are wronged (Rose & Asher, 1999).

Gender also appears to moderate the use of certain aspects of nonverbal communication, such as laughter, which is typically seen as a positive act. Gender tends to moderate the use of laughter in intimate situations. Girls use laughter to bond and increase the level of intimacy in a given situation (Foot, Chapman, & Smith, 1977). For instance, when placed in a situation that females perceive as low in intimacy, they may laugh to increase the level (Berlyne, 1969). Boys, however, may use laugher to break a level of intimacy in a situation they feel is too intimate (Berlyne, 1969).

Boys tend to be more responsive to a friend in situations that are lower in intimacy (Foot et al., 1977). Distraction tasks may be employed to decrease the situation's intimacy to a level that boys feel is appropriate for discussion of personal problems. More typically, while engaging in problem talk, boys use distraction techniques or create diversions to avoid direct conversation (Copeland & Hess, 1995). Boys may even physically withdraw from uncomfortable conversations. Boys joke with each other about the things that are stressing them out, which may again be a way to cope with problems, along with the discussion of those problems (Rose & Rudolph 2006).

Girls, on the other hand, are more responsive to friends in situations of high intimacy and apply the distractions only after serious problems have been discussed. In these intimate situations, boys are more responsive to the use of laugher and looking at each than their female counterparts (Foot et al., 1977). Girls seem to be less concerned with laughter and talking (outright signs of attention) and more responsive than boys to touching and body positioning (Foot, et al., 1977).

Interactions with same-sex peers, which is the most common form of interpersonal interaction in adolescence, strengthens sexually dimorphic behavior (Rose & Rudolph, 2006). Girls tend to interact in smaller groups, or dyads, and, as noted, they view friendships as central to their self-concept and include their friends in self-descriptions more than do boys (Rose & Rudolph, 2006). Girls' interactions tend to be longer in duration than those of boys, and girls engage in social conversations while interacting with their same-sex peers. Female dyads use more self-disclosure among friends than males (McGuire & McGuire, 1982). This self-disclosure leaves girls more likely to discuss their problems and seek answers or support for their problems during conversations (McNelles & Connolly, 1999).

Gender Differences in Depression

Girls are at especially increased risk for depression beginning in adolescence (Nolen-Hoeksema, 2001). In fact, they are twice as likely to develop depression as boys (Nolen-Hoeksema, 1990). There are multiple reasons for the increased risk for females. Physiological pubertal changes may be one factor (Twenge & Nolen-Hoeskesma, 2002). Decreased levels of circulating testosterone have been linked with increased levels of depressive symptoms (Shores & Matsumoto, 2014). This finding holds true for both males with decreased levels of testosterone and females in general.

Another factor may relate to parenting. Parents tend to control girls with more restrictions than they do their young boys (Nolen-Hoeksema, & Girgus, 1994). Girls may also feel a greater restriction in school if they excel in specific scholastic areas such as math and the hard sciences that are traditionally viewed as "male" disciplines (Nolen-

Hoeksema, & Girgus, 1994). This may not only stifle their education, but also cause distress as they feel like they are stepping outside of their specific gender-role.

Yet another factor may be the increased interpersonal stress to which females are subjected (Hamilton et al., 2015). Increased interpersonal stress could be the result of increased verbal aggression against young females (Rose & Rudolph, 2006). Girls also tend to take greater personal responsibility for problems occurring in their lives (Landoll, Schwartz-Mette, Rose, & Prinstein, 2011), which may exacerbate internalization of problems and problem-related distress. Girls' greater interpersonal orientation as compared to boys (Rose & Rudolph, 2006) also may render them more vulnerable to a phenomenon called depression contagion (e.g., Schwartz-Mette & Rose, 2012). Depression contagion occurs when a friend of a depressed person becomes depressed as a result of the friendship (Prinstein et al., 2005). Depression contagion is more apt to occur in close, high quality friendships (Schwartz-Mette & Smith, in press), which are more common in females (Parker & Asher, 1993).

As mentioned, when boys are with their friends they typically engage in physical competitions (Rose & Rudolph, 2006), which may be viewed by boys as preferable to spending time in intimate conversations. Engaging in activities together is an important quality in friendships (Parker & Asher, 1993). While competitive game play may lead to occasional physical or verbal aggression and may not be perceived as positive by those who 'lose in these competitions, boys may be somewhat protected from the emotional downsides of excessive talking about problems that render girls more vulnerable. Thus, engaging primarily in group activities while with friends may help to partially explain why boys appear to be at lower risk for developing depression in adolescence.

The Current Study

The current study investigates close friendship interactions and the potential impact they have on adolescents' friendship quality and emotional adjustment. In particular, the research examines the associations of observed engagement with friends during a self-disclosure task with positive friendship quality, conflict, and depressive symptoms. Gender differences in these associations also are explored. The study's two primary aims are each described in more detail below.

Aim 1: Examine associations of self-disclosure with quality of friendship and emotional adjustment

Research Question 1: Does time spent talking about a problem (self-disclosure) predict positive and/or negative qualities of friendship, and are these relations further moderated by gender?

As noted, self-disclosure is an important predictor of positive friendship quality (Cillessen et al., 2005). It is hypothesized that the amount of time spent talking about problems with a friend will be positively associated with positive friendship quality. The existing literature does not suggest an association between negative friendship quality and self-disclosure. As such, it is unclear whether self-disclosure will predict negative friendship quality.

Importantly, the association of self-disclosure with friendship qualities may differ for girls and boys. Girls tend to engage in self-disclosure more than boys (Rose &

Rudolph 2006). As such, girls' friendships characterized by low levels of self-disclosure may be unique, as intimate conversation is a key part of socialization for females (Landoll et al., 2011). Consequently, the lack of self-disclosure may signal a relationship quality issue in girls' friendships (e.g., low positive quality).

Conversely, low levels of self-disclosure in boys' friendships may not necessarily signal a problem. Researchers question whether boys' lower levels of self-disclosure with friends reflect differences in intimacy pathways for the sexes (Rose & Rudolph, 2006). As mentioned, boys' friendships tend to be organized around activities (e.g., play games in groups of friends), which may not allow as much time for the opportunity to have extended, private conversation as typified in girls' friendships. Boys may derive feelings of closeness from shared activities as opposed to self-disclosure. Thus, low levels of disclosure may not be associated with friendship quality deficits in boys.

Research Question 2: Does time spent talking about problems (self-disclosure) predict depressive symptoms, and is this relation further moderated by gender?

Research suggests a balance between the level of depressive symptoms and the amount of self-disclosure. Too little or too much discussion of problems with friends may be associated with increased depressive symptoms (Rose, 2002). Never discussing problems with friends may prevent youth from obtaining the benefits of friendship that protect against emotional problems. Alternatively, repeatedly rehashing problems with friends may increase and inhibit adaptive problem-solving, which may then lead to the development of depressive symptoms.

The association between self-disclosure and depressive symptoms is different for males and females. Males disclose significantly less than females (Rose, 2002). When males engage in self-disclosure, it may be about more serious problems, which may signal greater significance. If this disclosure is perceived as helpful and productive, boys' negative feelings may be reduced. As such, boys' self-disclosure may not be related to depressive symptoms (Rose, 2002).

On the other hand, research suggests that females' higher levels of self-disclosure may have adjustment tradeoffs, namely increased depressive symptoms (i.e., co-rumination, Rose, 2002). As noted, more time spent discussing problems may render problems as more salient and perceived as harder to solve, thus increasing depressive symptoms. Indeed, research suggests that girls' self-disclosure may be more strongly related to depressive symptoms (Landoll et al., 2011). The current study examines the duration of time problems are discussed during an observed problem talk task as it relates to level of depressive symptoms and friendship quality and whether this hypothesized effect differs by gender.

Aim 2: Examine associations of non-verbal interpersonal engagement and engagement in a potentially distracting task (puzzle) with quality of friendship and emotional adjustment

Research Question 3: Does non-verbal interpersonal engagement (laughter, touching, smiling, facing, looking, and overall engagement score) predict positive and/or negative qualities of friendship, and are these relations further moderated by gender?

Non-verbal language, also referred to as body language, is the use of facial expressions, tone of voice, eye contact, posture, and personal spacing (Foot et al., 1977). Body language comprises 55% of all communication (Mehrabian, 1971). The actual words spoken communicate only 7% of an individual 's judgment of a conversation, whereas 38% is tone of voice (Mehrabian, 1971). This suggests that non-verbal communication during interactions is extremely important.

Body language can be created both consciously and unconsciously. Many body positions are simply reflexes that are deeply rooted in evolution, such as tensing the body when angry, or sitting on the edge of a chair as if "ready to flee" in an uncomfortable situation (Nelson, 2005). Individuals may engage in other behaviors without thinking, such as, playing with one's hair while bored. People may also consciously manipulate their body in a desire to convey a specific message (Mehrabian, 1971). Consideration of context is important while trying to gauge someone's body language. Crossing one's arms can mean they are cold or that they are angry. Observing a sufficient sample of body language is essential to make proper inferences.

Negative body language tends to be associated with emotions such as boredom, anger, nervousness, and insecurity (Blatner, 2009). The movement and position of one's eyes can be a key component to determine how someone is feeling. When eyes are focused on an unimportant object or focused purposefully away from the speaker, negative emotion may be assumed. These cues can occur in multiple scenarios including being scared, feeling threatened, or feeling unsure.

Positive body language is typically associated with emotions such as excitement, attentiveness, and joy (Blatner, 2009). Opening the body to the speaker (i.e. relaxed

posture, arms in a non-threatening position) demonstrates that one is comfortable exposing vital organs and that she or he is not threatened. Rapidly blinking or nodding can express that one is intrigued in the speaker's topic. Direct and prolonged eye contact may be a prime indicator of interest and engagement in the subject matter (Blatner, 2009). Touching between friends in particular exhibits feelings of intimacy or closeness (Nguyen, Heslin, & Nguyen, 1975). Looking at a friend in an intimate situation indicates awareness and attachment (Russo,1975). Smiling typically displays attachment and positive feelings, yet can also be employed to mask anxiety (Patterson, 1976).

People tend to be more comfortable expressing themselves in situations that involve friends rather than in those involving less familiar individuals or strangers (Foot et al., 1977). As such, positive, non-verbal indicators may be frequently displayed in friendship interactions. If a friend is discussing a problem, the expectation is that the listener is more supportive and engaged because he or she has concern for the other person's feelings. As boys tend to be more uncomfortable with self-disclosure and intimate situations than girls, they may exhibit more negative non-verbal behaviors because they feel uneasy (Foot et al., 1977). Boys may even physically withdraw from situations involving personal disclosure (Coyne, 1976).

Empirical studies of non-verbal behavior with adolescent friends are extremely limited. Those that do exist are with younger populations and did not examine associations of non-verbal behavior with friendship quality and/or emotional adjustment (e.g., Foot et al., 1977). The current study explores different aspects of non-verbal interpersonal behavior as it relates to both quality of friendship and to depressive

symptoms. It is hypothesized that greater levels of non-verbal engagement will be associated with higher levels of positive quality and lower levels of conflict in friendship.

Mean-level gender differences favoring girls are expected for each of the non-verbal engagement variables (laughter, touching, smiling, facing, looking, and overall engagement score). It is expected that girls become more invested in their friend's problem both emotionally and physically. Girls engage mostly in smiling at one another and touching each other (Foot et al., 1977). Boys may feel uncomfortable with problem-talk and physically withdraw. Boys may engage in predominately laughing and looking at one another (Foot et al., 1977).

Gender differences also are expected in associations of non-verbal behavior with friendship quality. The association between non-verbal behavior and positive friendship quality is expected to be stronger for girls compared to boys.

Research Question 4: Does non-verbal interpersonal engagement (laughter, touching, smiling, facing, looking, and overall engagement score) predict level of depressive symptoms, and are these relations further moderated by gender?

Few studies have investigated whether an association exists between non-verbal interpersonal engagement and emotional adjustment indices, such as depressive symptoms. Some studies suggest that depressed persons exhibit lower levels of nonverbal communication skills as compared to their non-depressed peers. In one study, depressed individuals were less able to identify the emotional meaning of facial expressions, and register the indication of tone of the speaker's voice in conversation (Carton, Kessler, & Pape, 1999). One inference from this research might be that depressed individuals may

have more difficulty initiating nonverbal communication as well as deciphering the message. The result is that they might be more reserved during personal interactions because they are unsure of which emotion accompanies facial expressions. They may also display the typical posture of feeling sad, such as slouching or looking down, and have difficulty positioning themselves away from the down mood.

It is hypothesized that higher levels of nonverbal engagement will be associated with lower levels depressive symptoms in each member of the dyad. Gender may moderate the relationship between nonverbal communication and depressive symptoms, as girls may exhibit higher levels of non-verbal engagement than boys if a friend is depressed.

Research Question 5: Does engagement in the puzzle (playing with puzzle, time spent playing with puzzle) predict positive and/or negative qualities of friendship, and are these relations further moderated by gender?

In the current study, a puzzle is placed on the table during the adolescents' observational task in which they discuss problems. The puzzle in this experiment is employed as a possible distraction during the time the adolescents are asked to talk about their problems.

Few previous studies that used observational methods have allowed for a potential distraction task such as the puzzle (c.f., Rose et al., 2014). The distraction could facilitate the level of intimacy between two people and encourage a deeper conversation. Some adolescents may utilize the puzzle to occupy their hands and eyes while discussing potential uncomfortable topics. The adolescents may be able to more easily discuss and

focus on the problems when the dyad is able to decrease the level of intimacy present in the situation. Or it could be that engagement with the puzzle detracts from talking and inhibits disclosure altogether.

Gender is expected to moderate the relation between engagement with the puzzle and friendship quality. Specifically, for girls, engagement with the puzzle is expected to relate to lower levels of positive friendship quality. This is because girls are thought to value disclosure more than boys, and any detraction from disclosure may be perceived as a friendship transgression. For boys, however, engagement with the puzzle is expected to relate to higher levels of positive friendship quality, given that boys may prefer to rely on an activity to facilitate intimacy. No specific hypotheses are put forth for negative friendship quality, as it is unclear how engagement with the puzzle may or may not relate to conflict between friends.

Research Question 6: Does engagement with the puzzle (playing with puzzle, time spent playing with puzzle) predict depressive symptoms, and are these relations further moderated by gender?

To date, no research has examined whether engagement in a distracting activity during a disclosure task is directly associated with depressive symptoms. It may be that the distraction of the puzzle helps facilitate conversation between those who are depressed and their friend (Carton et al., 1999). It could be that engagement with the puzzle may be associated with greater depressive symptoms. Depressed adolescents may feel like withdrawing socially from intimate conversations and instead focus on any available distraction, such as the puzzle. On the other hand, boys' friendships in

particular are characterized by a higher level of engagement in shared activities. Therefore, boys' engagement with the puzzle during disclosure is viewed positively by boys and is actually associated with fewer depressive symptoms. No firm hypotheses are put forth regarding the association of engagement with the puzzle and depressive symptoms and moderation of this effect by gender; however, these effects will be explored in study analyses.

Method

The present study is being completed in conjunction with the ongoing study *Maine Adolescent Peer Project* (MAPP). The primary investigator for MAPP is Rebecca Schwartz-Mette Ph.D. The University of Maine Institutional Review Board reviewed and approved this project prior to data collection (#2015_10_01).

Participants

Participants were 60 adolescents (12-19 years old; 32 females, 28 males) that were grouped into 30 same-sex friendship dyads. Participants were predominantly Caucasian (n=57, 95%), with one self-identified African American participant (1.7%), one self-identified American Indian participant (1.7%), and one self-identified Asian participant (1.7%).

Procedure

Participants were recruited in-person and via flyers posted in the community. In-person recruitment occurred at local high school sporting events, community events, and at locations where adolescents were likely to visit (e.g., area malls). Youth who were interested in participating in the study contacted the Peer Relations Lab at the University of Maine and provided contact information for their parent(s)/guardian(s). This youth was referred to as the "target" youth. Lab staff next contacted the target youth's parent(s)/guardian(s) and obtained parental consent for the youth to participate. Parental consent was obtained via mail (e.g., hard copies of consent form mailed to and returned by family) or via password-protected Qualtrics© survey. Individual passwords were given to parents/guardians via phone to ensure that the consent form was only completed by the appropriate parent/guardian. Youth then identified and provided contact information for a same-sex friend who was within two years of their own age. The identified friend was referred to as the "friend." Lab staff contacted the friend and the friend's parent(s)/guardian(s) to obtain consent for the friend online or by mail.

The target youth and his or her same-sex friend then came to the university for the lab visit. Upon arrival at the lab, each member of the dyad went into a separate room that contained a computer. Participants then took a survey via Qualitrics© that began with a child assent form. Also included on the survey were several questionnaires regarding their friendship with the other member of the dyad and depressive symptoms (see Measures, below).

After completing the questionnaires, both members of the dyad then met in an observation room that held a table, two chairs, and an iMac computer with a built-in video camera and an external microphone for recording the dyad's interaction. The dyad

then engaged in a warm-up ("Plan a Party") task in which they planned a party for approximately seven minutes (*Appendix C*).

Following the warm-up task, the dyad was separated again to complete another questionnaire in which they were asked to generate a problem that they were currently experiencing (*Appendix D*). The experimenter then asked the participants if they would be comfortable discussing this problem with their friend who attended the lab visit with them. If they both responded yes, both members of the dyad were taken back to the observation room. If one of the members of the dyad answered no, they were given a paper copy of the problem generation sheet to complete with a problem they felt more comfortable discussing.

The experimenter then led each youth back to the observation room and placed a puzzle on the table. The youth were told they were going to be discussing the problems they had just generated for about 15 minutes (*Appendix E*). They were instructed that they could talk about anything they wanted to about the problem, it did not matter who went first or how long they talked, so long as they talked about each person's problem. They were also told that when they were finished discussing their problems, they could talk about anything else they wanted to talk about or play with the puzzle. Following this task, the dyad completed additional questionnaires that are not of interest to the current study.

Prior to the dyad's departure from the lab, youths' responses to measures of depression, non-suicidal self-injury, and suicidality were reviewed by research staff. Note that the measures of non-suicidal self-injury and suicidality were not of interest to the current study. For any youth reporting clinically significant depressive symptoms (CESD

scores of 19 or above), self-injury (5-10x in last year), and/or any level of suicidality (e.g., "I have had a plan to kill myself"), a follow-up risk assessment was conducted to determine whether the participant was experiencing any current risk for suicide. Parents/guardians of any participant whose responses to the questionnaires indicated some level of risk were contacted by lab staff to relay this information. All participants were given a list of community resources if they felt they needed support following the lab-visit. Both members of the dyad were given $40 along with a university water bottle as compensation.

Measures

Demographics

At the beginning of each survey participants responded to items assessing age, gender, level of friendship (best friend, good friend, just a friend, not a friend), ethnicity, and race.

Depressive Symptoms

The Center for Epidemiological Studies Depression (CESD) questionnaire was used to assess the level of depressive symptoms experienced by each participant (CES-D; Radloff, 1977). The measure includes 20 questions that ask about depressive symptoms experienced in the last week by the individual. Participants rate each item on a 0-2 scale reflecting the degree to which each item is characteristic of them. Items assess affective, somatic, interpersonal, behavioral, and cognitive symptoms of depression. Internal consistency of items was high ($\alpha = .91$; see *Appendix A*).

Friendship Quality

Positive and negative friendship quality was assessed with the Revised Friendship Quality Questionnaire (Rose, 2002, revision of Parker & Asher, 1993). This questionnaire includes 25 items designed to gain perspective on the quality of the relationship between the target and the friend they selected to bring to the lab. These items assess a range of friendship domains including companionship and recreation, conflict resolution, help and guidance, intimate exchange, validation and caring, conflict, emotional closeness, and relationship satisfaction. Each item is rated on a 1-5 scale reflecting the degree to which each item is characteristic of the friendship. The three conflict items were averaged to create a negative friendship quality score ($\alpha = .69$), and the remaining 22 items were averaged to create a positive friendship quality score ($\alpha = .88$). See *Appendix B* for this measure.

Problem Generation

The Problem Generation and Salience Questionnaire (Rose, Swenson, & Carlson, 2004) was used to help the participants generate a current problem to discuss with their friend (see *Appendix D*). The questionnaire also includes items assessing the salience of the problem that were not used in the current study.

Observational Coding

The problem talk videos were coded to assess the engagement level of the dyad. The coded aspects included whether or not the dyad played with the available puzzle (coded as yes/no), the time (in minutes and seconds) they played with the puzzle, and the time (in minutes and seconds) spent talking about their two selected problems. Puzzle time was measured from the opening of the box during the time which the dyad was also

talking about their problems. Talk time was measured from the start to the end of any

conversation about the selected problems. If the dyad stopped talking about the problems

(or playing with the puzzle) and then started again, the timing was resumed.

Also coded were the levels of laughter (coded on a 1-5 scale), touching (coded on

a 1-5 scale), smiling (coded on a 1-5 scale), facing each other (coded on a 1-5 scale), and

looking at each other (coded on a 1-5 scale). An overall engagement variable also was

calculated from the mean of each aspect of interpersonal engagement. For these

constructs, a score of 1 would indicate very low or non-existent levels, and a score of 5

would be very high levels (see *Appendix F & G*).

Prior to coding all variables, two female raters were trained by a faculty mentor in

coding, and inter-rater reliability was assessed using intra-class correlation coefficients.

After completing a series of two training videos, raters then coded just over 25% of the

recordings (n = 7). Inter-rater reliability estimates were as follows: puzzle (*ICC* = 1.00),

puzzle time (*ICC*= .99), talk time (*ICC*= .99), laughter (*ICC*= .83), smiling (*ICC*= .93),

touching (*ICC*=.80), looking at each other (*ICC*=.69), and facing each other (*ICC*=.95).

Any discrepancies were decided through collaborative reviews of the videos in question.

Following achievement of acceptable reliability, coders then independently coded the

remainder of the recordings.

Data Analysis Plan

Multilevel models were used to test all primary hypotheses of interest. Because

data from friends are not considered independent observations, traditional regression

analysis was not appropriate. The multilevel modeling accounts for the interdependence

of friends' data. This allowed for prediction of individual (level 1) outcomes (e.g.,

depression) by dyadic level (level 2) variables (e.g., engagement).

Results

Descriptive Statistics and Correlations

Descriptive statistics can be found in Table 1. The mean level of positive

friendship quality was moderate ($M = 3.16$, $SD = .58$), while the mean level of negative

friendship quality was quite low ($M = 0.69$, SD .88). Relatively low levels of depressive

symptoms also were observed ($M = 9.91$, $SD = 8.71$); however, 40% of the sample

reported depressive symptoms that exceeded clinical cutoffs (American Psychiatric

Association, 2013).

Approximately 37% of the dyads played with the puzzle. The average amount of

time adolescents played with the puzzle was 1.27 minutes ($SD = 2.22$). The average

amount of time a dyad spent talking about problems was higher at 3.88 minutes (SD

$=2.72$). Mean levels of laughter ($M = 2.43$, $SD = .89$), smiling ($M = 3.30$, $SD = .94$),

looking ($M = 3.27$, $SD = .97$), and facing ($M = 3.23$, $SD = 1.03$) were moderate, while the

mean level of touching was low ($M = 1.10$, $SD = .30$).

Correlations among study variables are presented in Table 2. Positive friendship

quality was significantly and positively correlated with laughter ($r = .27$, $p = .04$), smiling

($r = .39$, $p = .00$), touching ($r = .34$, $p = .01$) and looking ($r = .34$, $p = .01$). Higher levels

of positive friendship quality were associated with lower levels of negative friendship

quality ($r = -.20$), but this association was only marginally significant ($p = .09$). Negative

friendship quality was not significantly correlated with any other study variable.

Depressive symptoms were significantly and positively correlated with laughter (r = .27, p = .04).

Whether or not the dyad played with the puzzle was positively associated with how long the dyad played with the puzzle (.76, *p* = .00) and how long they talked about problems (*r* = .31, *p* = .02). However, playing with the puzzle was negatively correlated with facing (*r* = -.38, *p* = .00) and looking (*r* = -.43, *p* = .00). Playing with the puzzle was also marginally associated with lower levels of smiling (*r* = -.24, *p* = .06). Time spent playing with the puzzle varied significantly and positively with time spent talking (*r* = .39, *p* = .00) and negatively with looking (*r* = -.43, *p* = .00).

Time spent talking about problems was marginally positively associated with looking (*r* = .24, *p* = .07). Laughter was significantly and positively correlated with smiling (*r* = .57, *p* = .00), facing (*r* = .44, *p* = .00), and looking (*r* = .17, *p* = .04). Smiling varied positively and significantly with looking (*r* = .32, *p* = .01), and marginally with touching (*r* = .25, *p* = .06). Facing varied significantly and positively with looking (*r* = .41, p = .00). No other significant associations with touching were observed.

Mean-Level Gender Differences

T-tests were used to evaluate mean-level gender differences in each variable (see Table 1). Girls reported significantly higher levels of positive friendship quality (*M* girls = 3.34, *M* boys = 2.81; *t* = 3.53, *p* = .00) and marginally lower levels of negative friendship quality (*M* girls = .55, *M* boys = .95; *t* = 1.70, *p* = .10) than did boys. Girls were observed to exhibit significantly more laughter (*M* girls = 2.69, *M* boys = 2.08; *t*=2.87, *p* = .01), smiling (*M* girls = 3.57, *M* boys = 2.92; *t*=2.62), touching (*M* girls = 1.17, *M* boys = 1.00; *t*=2.65) than were boys. No significant gender differences were

observed for depressive symptoms, whether or not they played with the puzzle, length of time the dyad played with the puzzle, time spent talking about problems, facing, or looking.

Associations of Non-Verbal Engagement Variables with Positive Friendship Quality

Analyses first tested associations of the observed friendship interaction variables (laughter, smiling, touching, facing, looking, amount of time spent talking about problems, whether the dyad played with a puzzle, and how long they played with the puzzle). In each model, positive friendship quality was predicted by a single independent variable (see Table 3). Higher levels of general observed engagement significantly predicted higher levels of positive friendship quality ($PE = .42$, $p = .01$). In terms of the components of observed engagement, smiling ($PE = .24$, $p = .02$), touching ($PE = .65$, $p = .04$), and looking ($PE = .20$, $p = .04$) each predicted higher levels of positive friendship quality. There were no significant effects of time spent talking about problems, facing, laughing, or whether or how long the dyad played with the puzzle on positive friendship quality.

Whether these relations were further moderated by gender was next tested in a series of multilevel models in which positive friendship quality was predicted by one independent variable, gender, and their interaction. The effect of touching on positive friendship quality was significantly moderated by gender ($PE = -.47$, $p = .00$). Simple slope analyses indicated that the effect of touching on positive friendship quality was significant for girls ($PE = .44$, $p = .006$) but not boys. None of the other interactions with gender were significant.

Associations of Non-Verbal Engagement Variables with Negative Friendship Quality

Analyses next tested associations of the observed friendship interaction variables with negative friendship quality. A parallel set of models was used to test these associations except that negative friendship quality was the dependent variable. No significant effects of any observed friendship interaction variable were observed for negative friendship quality. Analyses next tested whether gender moderated any relations of interest, but none of the moderated effects were significant.

Associations of Non-Verbal Engagement Variables with Depressive Symptoms

Analyses next tested associations of the observed friendship interaction variables with depressive symptoms. Only one marginally significant effect emerged. In particular, the effect of laughter on depressive symptoms was marginally significant, such that higher levels of laughter were associated with higher levels of depressive symptoms ($PE = 2.80$, $p = .09$). None of the effects of any other friendship interaction variable on negative friendship quality were significant. Additionally, gender did not significantly moderate any relation.

Discussion

The purpose of this study was to examine associations of dyadic interpersonal engagement with friendship quality and depression. Interactions ("problem talk" conversations) between adolescent same-sex friends were coded for laughter, touching,

smiling, facing each other, and looking at each other. Additionally, the time spent talking

about problems and whether or not friends engaged in a potentially distracting task

(playing with a puzzle) also were coded. Youth completed self-report measures of both

positive and negative friendship quality as well as depressive symptoms.

Mean-Level Gender Differences

Mean-level gender differences that emerged were generally consistent with

hypotheses and prior research. First, the amount of laughter expressed within dyads

varied by gender which was consistent with past research (Foot, Chapman, & Smith,

1977) suggesting girls tend to laugh together more than boys. Girls may use laughter to

increase intimacy in a situation where they feel intimacy may be lacking (Berlyne, 1969).

In the current study, dyads were discussing very personal problems in a somewhat

artificial setting. Girls may not have felt the atmosphere was intimate enough for them to

talk about problems and used laughter as a way to deal with this.

Girls also engaged in a larger amount of smiling as compared to boys, which is

also consistent with past research (Foot et al., 1977). As noted, girls are more

comfortable expressing positive attachment behaviors and emotions to each other than

boys (Storch, Sweeney, Danner, & Dove, 2002). As smiling is the physical display of

warm feelings towards another person (Patterson, 1976), it is perhaps not surprising that

girls engaged in more smiling at one another than boys. Finally, gender differences in

touching also emerged. Again, consistent with past research (Foot et al., 1977), girls

were observed to engage in more touching than were boys. Friends use physical contact

as a sign of intimacy (Nguyen, Heslin, & Nguyen, 1975). It has been noted that girls'

friendships appear to be more intimate than those of boys, so it follows that they engaged in a greater amount of touching.

In terms of self-reported friendship quality, gender differences also emerged as expected in favor of girls. Specifically, girls reported higher levels of positive friendship quality than boys. This was consistent with past research (Ford, 1982) and may be because girls consistently seem to value friendship more than boys and also incorporate their friendships into their self-identity (Rose & Rudolph, 2006). Girls have higher levels of both sensitivity and empathy in their friendships (Storch, Sweeney, Danner, & Dove, 2002). These feelings are typically thought of as key components of a high-quality relationship. A marginally significant gender difference was observed for self-reported negative friendship quality. Girls reported lowered levels of negative friendship quality than boys, but this effect did not quite reach statistical significance.

Other mean-level gender differences tested did not emerge as expected. With regard to non-verbal engagement, gender differences were not significant for facing (i.e., opening up the body to the other person) or looking. It was hypothesized that girls would engage in a greater amount of open body language (i.e., greater facing and looking), because at times boys may physically withdraw from intimate situations (Copeland & Hess, 1995). Girls were generally thought to be more comfortable in these situations and did not feel the need to remove themselves. It may be that facing and looking are less-intimate forms of non-verbal engagement and that gender differences are more pronounced for signs of engagement that signal greater intimacy (e.g., touching).

Time spent talking about problems also did not vary significantly by gender. This was unexpected, as previous research suggested that girls would engage in more

"problem-talk" than boys (McGuire & McGuire, 1982). Interactions among girls tend to focus more on social conversations while boys may be more apt to play competitive games (Rose & Rudolph, 2006). As these intimate exchanges between females tend to occur in dyads (Rose & Rudolph, 2006), it would be expected for girls to talk about their problems for a longer period of time over boys. It may be that boys who participated in the current study agreed to do so, in part, because they were asked to converse about problems and were compliant with study instructions. Engagement with the available distraction task, the puzzle, also did not vary by gender. While boys have previously been found to engage in distraction tasks during intimate situations (Copeland & Hess, 1995), boys in the current study were not observed to play with the puzzle at greater frequencies or with greater duration than girls. It may be that the puzzle was not an appealing or competitive enough distraction from the problem talk task or that boys felt comfortable disengaging from the problem talk task by discussing other topics instead.

Surprisingly, no gender differences were observed for depressive symptoms. This finding was not consistent with expected results (see Rose & Rudolph, 2006). Past research demonstrates that girls are at an increased risk for depressive symptoms and that this sex-difference begins during adolescence (Nolen-Hoeksema, 2001). Given that gender differences in depression are well-documented in the literature, it is likely that gender differences would emerge with a larger sample.

Interpersonal Engagement and Friendship Quality

The first of two primary study aims was to examine associations of interpersonal engagement with relationship quality. With regard to associations of engagement with

relationship quality, it was hypothesized that higher levels of observed interpersonal engagement (e.g., laughter, touching, smiling, facing, looking, and overall engagement) would be related to higher levels of positive friendship quality and lower levels of negative friendship quality (conflict). Some results emerged as consistent with hypotheses, and other results were somewhat surprising. Expected findings are discussed first.

Level of overall engagement significantly predicted positive friendship quality as expected. Touching (for girls only), smiling, and looking also each predicted positive friendship quality. An increased level of comfort between members of a high-quality friendship is likely to be responsible for the finding. People who are comfortable may be more expressive, more excited, and more likely to "open" their body up to another person (Blatner, 2009). Smiling at a friend shows attachment and affection (Patterson, 1976), and sustained looking at a friend is another gesture that may reflect attachment and affection (Russo, 1975).

Laughter did not significantly predict positive friendship quality. This may be due to the laughter variable itself. It was based on only the amount of laughter during the problem talk, not throughout the entire conversation the dyad had. Many problems reported by members of the dyads were serious in nature and may not have been conducive to humorous conversations. Thus, laughter may not be a good indicator of friendship quality in the context of a problem talk task. Facing one another also did not predict positive friendship quality. The lack of significance in this effect may have been due to the seating arrangement in the observation room. Participants were placed in specific seats around a table. They may not have felt comfortable turning their seats to

face their friend more squarely. Thus, the artificiality of the observation room set up may have limited the range of facing behavior that could be exhibited.

It was thought that dyads that reported high levels of friendship quality may have talked more about problems and avoided engaging in a potentially distracting task, playing with a puzzle. Neither talk time nor engagement with the puzzle was related to positive friendship quality. As participants were close friends, it may be that they had already talked a great deal about their problems and did not need or want to discuss them more in the context of the study. It also could be that the environment was experienced as artificial or uncomfortable and was therefore not conducive to extended problem talk.

In terms of the puzzle, it was thought to be a negative engagement task in that being engaged with the puzzle could preclude positive friendship quality, at least for girls. Some participants of both genders, however, expressed great interest in the puzzle, even before learning the directions for the problem talk task (e.g., one participant exclaimed, "I just want to play with the puzzle!" as soon as the experimenter left the room). This level of excitement about the distraction task was unexpected and may have inadvertently swayed some youth who normally would have focused on problem talk to play with the puzzle instead. As little to no research has examined the impact of potential distractor tasks on problem talk conversations, future studies should attempt to replicate this finding.

No variables (non-verbal engagement, time spent talking about problems, engagement with puzzle) predicted negative friendship quality. While few studies have examined these research questions, it could have been that friendships characterized by conflict would display fewer signs of interpersonal engagement and higher levels of

engagement with the distraction (puzzle). Given that participants in the current study reported generally low levels of friendship conflict, the ability to detect differences in negative friendship quality as a function of engagement could have been limited by a restricted range. Perhaps future studies of friendships that varied more in quality would be able to detect such effects.

Interpersonal Engagement and Emotional Adjustment

With regard to associations of engagement with emotional adjustment, it was hypothesized that higher levels of observed interpersonal engagement would be associated with lower levels of depressive symptoms. Conversely, higher levels of depressive symptoms were expected to be associated with higher levels of puzzle use and time spent playing with the puzzle.

Overall, engagement was not associated with individuals' depressive symptoms. Touching, smiling, facing, or looking did not predict level of depressive symptoms in the dyad. It was thought that depressed individuals may not feel as comfortable in engaging non-verbally with friends, but perhaps the closeness of friendships in this situation overrode any potential negative effect of depressive symptoms on interpersonal engagement. In other words, the relationship between expressivity and depressive symptoms may not be present when individuals were in an environment in which they felt comfortable. Talking with one of their closest friends may have excited them and allowed them to feel closer to their friend, which brings pleasant feelings. A relationship between body language and depressive symptoms may only exist in situations where the comfort level is decreased. Moreover, it could be that interpersonal engagement is not

necessarily reflective of depressive symptoms and/or does not necessarily impact individuals' depressive symptoms.

Interestingly, however, one aspect of interpersonal engagement, laughter, had a marginally significant effect on depressive symptoms. Specifically, more laughter observed between members of a dyad was associated with higher levels of depressive symptoms in the dyad members. While laughter was expected to predict a lower depressive symptoms score, it could be that depressed individuals felt uncomfortable in the problem talk context and used laughter as a way to alleviate distress felt in the intimate situation. Depressed adolescents may not want to exhibit their symptoms to friends and engaged in laughter as a way to make the situation seem happier or the problem less intense than it really was.

Time spent talking about problems also did not significantly predict level of depressive symptoms, and this relation was not moderated by gender. This result was not expected. It was thought that depressed youth would have serious problems that they would want to discuss with a friend. If a problem was intense or serious, it would seem that this would lead to a longer discussion about how to manage the problem and feelings about the problem would warrant more discussion. While a range of problem seriousness was observed in the current study (e.g., "my dog hurt her paw"; "My parents do not accept that I am transgender"), it could be that more serious problems do not necessarily warrant greater discussion or result in higher levels of depressive symptoms. Or it could be that adolescents with very serious problems (and perhaps higher levels of depressive symptoms) already spend a great deal of time talking about problems with friends and did not feel the need to do so in the context of the current study.

Whether the dyad played with the puzzle and the duration of playing did not predict level of depressive symptoms present in the members of the dyad. This could have been due to the level of excitement most adolescents had when they saw the puzzle on the table. The puzzle may have been viewed more as an attractive task, as opposed to something that could be used by depressed adolescents to either facilitate or avoid talking about problems. Adolescents who suffered from elevated depressive symptoms were as likely to use the puzzle during problem talk as those who were not.

Limitations and Future Research Directions

Limitations of the current study should be mentioned. First, the sample size was small and cross-sectional. Future studies with larger sample sizes and a longitudinal design may be better able to detect significant effects and/or further moderation of these effects by gender. Additionally, the sample, while reflective of the general population of Maine's youth, was not necessarily very diverse in terms of race, ethnicity, gender identity, sexual orientation, or other important demographic variables. Future studies should incorporate greater diversity in order to maximize generalizability of study results.

Aspects of the problem talk task could be altered in order to examine the effects of potentially distracting (or enhancing) tasks. For some youth, the puzzle may have been boring; for others, exciting. Using a more clearly boring or exciting distraction in future studies may make it easier to detect the effects of distraction on problem talk engagement.

Future studies should also expand to include friendships lower in quality and non-friends. This may allow for body language to be assessed in an individual displaying

depressive symptoms in an uncomfortable situation. A difference in physical

engagement between depressed and non-depressed youth may become evident in such

studies.

Future studies also could incorporate study of important third variables that may

further elucidate hypothesized effects. One such variable might be the construct of co-

rumination. Co-rumination is a phenomenon characterized by friends frequently and

extensively discussing problems (Rose, 2002). Co-rumination has been found to be

related to feelings of closeness and comfort within a friendship (Rose, 2002). Co-

rumination is also associated with increased levels of both depression and anxiety (Stone

et al., 2011). Co-rumination also may be the explanation as to why girls have been found

to have more positive relationship qualities but also greater depression. Future studies

involving assessment of self-reported and observed co-rumination may shed greater light

on associations of friendship engagement with friendship quality and depressive

symptoms. Specifically, it could be that co-rumination is a more appropriate variable to

consider in the context of these hypothesized associations than merely time spent talking

about problems.

Friends self-disclose with each other more than non-friends (Newcomb &

Bagwell, 1995), and self-disclosure among friends has been linked with many positive

relationship attributes such as helping and companionship (Parker & Asher, 1993).

Although it is not clear whether co-rumination between the dyad leads to increased

interpersonal engagement or if close friendships characterized by high levels of

engagement allow for the comfort needed to rehash problems via co-rumination, it is

likely that both directions of effect are present. Future studies incorporating assessment of co-rumination should test these associations.

Co-rumination can also lead to negative consequences and increased depressive symptoms (Rose, 2002). Co-rumination is thought to be associated with depression, at least in part, due to the focus of negative feelings during co-ruminative conversations. Friends may begin to dwell on their problems when together due to the pleasantness that came with the increased feelings of closeness. Dwelling on negative thoughts, feelings, and events with a friend, however, may make problems appear more salient and harder to solve, which could increase risk for depression.

Interestingly, the associations of overall engagement (and individual indices of engagement—smiling, touching, looking) with positive friendship quality and with depressive symptoms were not further moderated by gender. The study may have been underpowered to detect these two-way interactions, and future research should incorporate larger samples, as previously suggested. However, assessing co-rumination also may help to extricate hypothesized gender differences that did not emerge in the current study. For instance, girls have been found to engage in a greater amount of co-rumination when compared to boys (Rose, 2002). It could be that girls' co-rumination in particular is characterized by high levels of interpersonal engagement. Boys' co-rumination may be facilitated by engagement in shared activities. As such, future studies that assess co-rumination along with gender differences in engagement, positive friendship quality, and depressive symptoms may be better able to tease apart the associations of these closely related constructs.

Conclusion

Despite the limitations of this research and the directions suggested for future study, the current study does offer potential contributions to our understanding of positive engagement factors (i.e. laughter, touching, smiling, facing each other, and looking at each other) and important aspects of adolescent mental health (i.e. positive friendship quality, negative friendship quality, and level of depressive symptoms). This study involved a multi-method assessment, development of a reliable and valid observational coding system, and sophisticated statistical techniques to examine the ways in which friends' non-verbal engagement with one another impacts friendship quality and emotional adjustment. What is more, the study revealed important new information about associations of certain aspects of interpersonal engagement (e.g., touching, smiling, looking) with positive friendship quality and other aspects of interpersonal engagement (e.g., laughter) with depression.

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Table 1. Descriptive statistics and mean-level gender differences

	Overall Sample Mean (SD)	Girls Mean (SD)	Boys Mean (SD)	*t*	*p*
Positive Friendship Quality	3.16 (.58)	3.34 (.41)	2.81 (.70)	3.53***	.00
Negative Friendship Quality	.69 (.88)	.55 (.77)	.95 (1.00)	-1.70†	.10
Depressive symptoms	9.91 (8.71)	10.12 (8.40)	9.51 (9.44)	.27	.79
Puzzle (yes/no)	--	--	--	-.44	.66
Puzzle Time	1.27 (2.22)	.95 (1.74)	1.72 (2.73)	-1.24	.22
Talk Time	3.88 (2.74)	3.81 (2.42)	3.98 (3.20)	-.22	.823
Overall Engagement	2.67 (.57)	2.85 (.52)	2.42 (.54)	3.10**	.003
Laughter	2.43 (.89)	2.69 (.93)	2.08 (.70)	2.87**	.01

	Overall Sample Mean (SD)	Girls Mean (SD)	Boys Mean (SD)	*t*	*p*
Smiling	3.30 (.94)	3.57 (.74)	2.92 (1.08)	2.62*	.01
Touching	1.10 (.30)	1.17 (.38)	1.00 (.00)	2.65*	.01
Facing	3.23 (1.03)	3.40 (.98)	3.00 (1.08)	1.47	.15
Looking	3.27 (.97)	3.40 (.85)	3.08 (1.11)	1.21	.23

Notes. †*p* < .10, *p* < .05, ** *p* < .01. ****p* < .001

Table 2. Correlations among study variables

	Positive Friend-ship Quality	Negative Friend-ship Quality	CESD Score	Puzzle	Puzzle Time	Talk Time	Laughter	Smiling	Touching	Facing	Looking
Positive Friend-ship Quality	-										
Negative Friend-ship Quality	-.20†	-									
CESD Score	-.18	.11	-								
Puzzle	-.18	.03	.12	-							
Puzzle Time	-.05	.05	.12	.76***	-						
Talk Time	.19	.14	.15	.31*	.39**	-					
Laughter	.27*	.18	.27*	-.14	-.04	-.13	-				

	Positive Friend-ship Quality	Negative Friend-ship Quality	CESD Score	Puzzle	Puzzle Time	Talk Time	Laughter	Smiling	Touching	Facing	Looking
Smiling	.39**	-.13	-.12	-.24†	-.19	.13	.57***	-			
Touching	.34**	.16	.070	-.02	-.00	-.07	.21	.25†	-		
Facing	.18	.046	.12	-.38**	-1.6	-.16	.44***	.21	.03	-	
Looking	.34**	.11	-.01	-.43**	-.43**	.24†	.17*	.32*	.02	.41**	-

Notes. †*p* < .10, * *p* < .05, ** *p* < .01, *** *p* < .001, **** *p* < .0001.

Table 3. Associations of Interpersonal Engagement with Positive Friendship Quality

Independent Variable	PE	Dependent Variable = Positive Friendship Quality
		p
Model 1		
Puzzle	-.21	.31
Model 2		
Puzzle Time	-.01	.79
Model 3		
Talk Time	.04	.26
Model 4		
Overall Engagement	.42*	.01
Model 5		
Laughter	.12	.31
Model 6		
Smiling	.24*	.02
Model 7		
Touching	.65*	.04
Model 8		
Facing	.11	.28
Model 9		
Looking	.20*	.04

Note. *p < .05.

Table 4. Associations of Interpersonal Engagement with Negative Friendship Quality

Independent Variable	PE	Dependent Variable= Negative Friendship Quality
		p
Model 1		
Puzzle	.05	.88
Model 2		
Puzzle Time	.02	.76
Model 3		
Talk Time	.04	.41
Model 4		
Overall Engagement	.27	.31
Model 5		
Laughter	.19	.26
Model 6		
Smiling	.14	.36
Model 7		
Touching	-.38	.44
Model 8		
Facing	.14	.35
Model 9		
Looking	.04	.78

Table 5. Associations of Interpersonal Engagement with Depressive Symptoms

Independent Variable	PE	Dependent Variable= CESD Score
		p
Model 41		
Puzzle	2.27	.47
Model 42		
Puzzle Time	.50	.46
Model 43		
Talk Time	.50	.36
Model 44		
Engagement	1.49	.58
Model 45		
Laughter	2.80†	.09
Model 46		
Smiling	-1.15	.47
Model 47		
Touching	2.11	.67
Model 48		
Facing	1.06	.47
Model 49		
Looking	-.14	.93

Note. †*p* < .10.

Appendices

Appendix A: CESD Questionnaire

Appendix B: Revised Friendship Quality Questionnaire

Appendix C: "Plan a Party" Script

Appendix D: Problem Generation Task

Appendix E: "Problem Talk Task" Script

Appendix F: Observational Data Coding Form

Appendix G: Observational Data Coding Rubric

Appendix A:

CESD Questionnaire

Depressive symptoms (Center for Epidemiological Studies-Depression Scale; Radloff, 1977)

Below is a list of ways you might have felt or behaved. Please circle the number that indicates how often you have felt this way during the past week.

1. I was bothered by things that didn't usually bother me.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

2. I did not feel like eating; my appetite was poor.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

3. I felt that I could not shake off the blues even with help from my family and friends.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

4. I felt I was just as good as other people.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

5. I had trouble keeping my mind on what I was doing.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

6. I felt depressed.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

7. I felt that everything I did was an effort.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

8. I felt hopeful about the future.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

9. I thought my life had been a failure.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

10. I felt fearful.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

11. My sleep was restless.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

12. I was happy.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

13. I talked less than usual.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

14. I felt lonely.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

15. People were unfriendly.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

16. I enjoyed life.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

17. I had crying spells.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

18. I felt sad.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

19. I felt that people dislike me.

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

20. I could not get "going."

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)

Appendix B: Friendship Quality Questionnaire

Friendship Quality (Friendship Quality Questionnaire; Parker & Asher, 1993)

Answer these questions about the friend who is visiting the lab with you today.

1. My friend and I get mad at each other a lot.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

2. If my friend had to move away, I would miss them.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

3. My friend and I tell each other that we're good at things.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

4. My friend and I make each other feel important and special.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

5. I feel happy when I'm with my friend.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

6. When there is free time at school, my friend and I are always together.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

7. If my friend and I get mad at each other, we always talk about how to get over it.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

8. I think about my friend even when they're not around.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

9. My friend and I talk about the things that make us sad.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

10. My friend and I make each other feel good about ideas that my friend or I have.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

11. My friend accepts me no matter what I do.
     0   1   2   3   4
 not at all true   a little true   somewhat true   pretty true   really true

12. My friend and I do fun things together a lot.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

13. My friend and I argue a lot.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

14. My friend and I go to each other's houses after school and on weekends.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

15. My friend understands what I'm really like.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

16. When my friend or I are having trouble figuring out something, we usually ask each
    other for help and advice.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

17. When my friend and I are mad about something that has happened to us, we can always talk to
    each other about it.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

18. My friend is important to me.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

19. My friend and I always make up easily when we have a fight.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

20. My friend and I fight.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

21. My friend and I often help each other with things so we can get done quicker.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

22. I am satisfied with my relationship with my friend.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

23. My friend and I always get over our arguments really quickly.
        0   1   2   3   4
   not at all true   a little true   somewhat true   pretty true   really true

24. My friend and I always count on each other for ideas on how to get things done.

0	1	2	3	4
not at all true	a little true	somewhat true	pretty true	really true

25. I can think of lots of secrets my friend and I have told each other.

0	1	2	3	4
not at all true	a little true	somewhat true	pretty true	really true

Appendix C: "Plan a Party" Script

Plan A Party Task:

Experimenter:
"Next, you are going to plan a party that would be fun to have. You can talk about whatever you want to about the party, like who to invite or what to do. You will have about 5 minutes to plan the party and then I will come back in the room when it is time to move on to the next part of the project."

Appendix D: Problem Generation Task

Problem Generation (Problem Generation and Salience Questionnaire; Rose, 2004)

List a problem that you have and answer the following questions about the problem.

PROBLEM: _____

1. How upsetting is this problem?

1	2	3	4	5
Not At All				Very Upsetting

2. How important is this problem?

1	2	3	4	5
Not At All				Very Important

3. How hard would it be to solve this problem?

1	2	3	4	5
Not At All				Very Hard

4. How hard would it be to feel better about this problem?

1	2	3	4	5
Not At All				Very Hard

5. How much do you want to feel better about this problem?

1	2	3	4	5
Not At All				Very Much

6. How much do you want this problem not to bother you?

1	2	3	4	5
Not At All				Very Much

7. How much do you want to not be upset about this problem?

1	2	3	4	5
Not At All				Very Much

Appendix E: "Problem Talk Task" Script

Problem Talk Task:

Experimenter:
"This part of the study involves talking about problems. Remember how you each came up with a problem? These are the problems you will talk about now. You should talk about each friend's problem, but it doesn't matter whose problem you talk about first. You can talk about anything you want to about the problems. You can talk about the problems as long as you want to for up to 15 minutes when I will come back. If you are done talking about the problems before I come back, you can talk about something else or you can work on this puzzle if you want to. Do you have any questions?"

Appendix F: Observational Data Coding Form

Dyad number: _____   Date:
_____

Rater:_____

****
******
PUZZLE
Did they play with the puzzle?   Yes (1)   No (0)

How long did they play with the puzzle? (total in minutes and seconds)
_____

▪▪▪
TALKING
How long did they spend talking about problems? (total in minutes and seconds)
_____

****
******
ENGAGEMENT (remember: this is a dyad-level score; i.e., a score for the dyad, not individuals)
a) Laughter

	1	2	3	4	5	
	Never	Rarely	Sometimes	Frequently	Often	

b) Smiling/Positive facial expression

	1	2	3	4	5	
	Never	Rarely	Sometimes	Frequently	Often	

c) Touching/physical contact

	1	2	3	4	5	
	Never	Rarely	Sometimes	Frequently	Often	

d) Facing one another

	1	2	3	4	5	
	Never	Rarely	Sometimes	Frequently	Often	

e) Looking/eye contact

	1	2	3	4	5	
	Never	Rarely	Sometimes	Frequently	Often	

Appendix G: Observational Data Coding Rubric

Puzzle: As soon as the dyad opens the box of the puzzle begin the timer and select "Yes" as the answer to whether or not they played the puzzle ONLY IF THE DYAD BEGINS WHEN THE PROBLEM IS BEING SPOKEN OF. The timer should stop if they dyad stops talking about their two problems and begin again if they resume talking about their problems.

Talk Time: The timer should begin as soon as the dyad begins to talk about their two selected problems. Cease the timer once they stop talking about the two problems. Any talk relating to the subject of their problem should count as "problem talk". If they cease talk and then resume the timer should also reusme.

1-5 Rating Scale:
A 1 should be selected if neither member of the dyad engages in the behavior during problem talk.

A 2 should be given if they dyad engages in the behavior once or twice during the problem talk.

A 3 should be given if the dyad engages in moderate amount of the behavior.

A 4 should be given if they dyad engages in the behavior greater than half of the time they are talking.

A 5 should be given if the dyad is engaging in the behavior for the majority of their talk. This does not mean it needs to be constant.