



Published in final edited form as:

J Adolesc. 2014 June ; 37(4): 433–440. doi:10.1016/j.adolescence.2014.03.009.

The Development of Adolescent Self-Regulation: Reviewing the Role of Parent, Peer, Friend, and Romantic Relationships

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Abstract

Self-regulation plays an important role in adolescent development, predicting success in multiple domains including school and social relationships. While researchers have paid increasing attention to the influence of parents on the development of adolescent self-regulation, we know little about the influence of peers and friends and even less about the influence of romantic partners on adolescent development of self-regulation. Extant studies examined a unidirectional model of self-regulation development rather than a bidirectional model of self-regulation development. Given that relationships and self-regulation develop in tandem, a model of bidirectional development between relationship context and adolescent self-regulation may be relevant. This review summarizes extant literature and proposes that in order to understand how adolescent behavioral and emotional self-regulation develops in the context of social relationships one must consider that each relationship builds upon previous relationships and that self-regulation and relationship context develop bidirectionally.

Keywords

adolescent self-regulation; bidirectional development; parent-adolescent relationship; peer relationship; romantic relationship

Self-regulation is becoming an increasingly popular topic in psychology. For example, according to a keyword search on PsycINFO, only 281 articles were published in 2002 with the keyword of self-regulation but 927 self-regulation articles were published in 2012 (search conducted May, 2013). As research regarding self-regulation advances, its importance as a predictor of crucial developmental outcomes including mental and physical health during adolescence is becoming markedly clearer. In addition, self-regulation research in developmental psychology has mainly focused on children, whereas self-regulation research in social psychology has primarily focused on young adults.

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Consequently, self-regulation in adolescence is often overlooked, and it is important to investigate systematically its role in relationship development.

Prior research suggests that high levels of self-regulation are associated with not only good academic outcomes (Blair & Diamond, 2008; Duckworth & Seligman, 2005) but with fewer instances of substance use in adolescence (Kirby, Petry, & Bickel, 1999; Wills, Walker, Mendoza, & Anette, 2006). Adolescents with better self-regulatory abilities are also less likely to engage in transgressive behaviors and more likely to engage in pro-social behaviors (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001). While there has been research on adolescent self-regulation and its relation to other adjustment outcomes, less research has examined the relationship between self-regulation and adolescents' social interactions with parents, peers, friends, and romantic partners. This review will examine literature regarding the development of adolescent self-regulation in the context of social relationships as well as stressing the importance of examining a model of bidirectional influence between self-regulation and relationship context.

We will first present a methodological background for this review as well as the theoretical underpinning utilized in the current review. Second, we will review literature presenting a developmental framework to examine adolescent social relationships and self-regulation bidirectionally as well as the associations between parent, peer, and romantic relationships. Third, we will briefly discuss evidence for a bidirectional relationship between adolescent self-regulation and relationship quality in the parent and peer/friend relationship contexts as well as a more in-depth review of evidence for this bidirectional relationship in the romantic relationship context. Finally, we will draw conclusions and suggest directions for future research.

Method of the Review

The studies reviewed herein are the results of a search of PsycINFO, PsycBOOKS, PsycARTICLES, and Google Scholar as well as additional works that were found by examining the reference sections of these articles or that had cited these articles. Search terms included: self-regulation, self-control, relationship quality, peer relationship, parent-adolescent relationship, romantic relationships, bi-directional development, and adolescent relationships. Specifically, it was our intent to incorporate as much evidence as possible by committing a thorough, systematic, and unbiased search of extant literature and presenting the results, including any conflicting findings, of this literature in the present review. Each reference found ($N = 154$) was retrieved in its entirety, and then screened to determine if it met all inclusion criteria. In order to be included in the review, each source had to meet the following inclusion criteria: (1) examine the influence of parent, peer, friend, or romantic relationship quality on self-regulation or self-control OR examine the influence of self-regulation or self-control on parent, peer, friend, or romantic relationship quality and, (2) be published in the English language. A final number of 70 studies were included in the review. When possible, we focused on studies utilizing adolescent samples, but report results from studies utilizing child or young adult samples when adolescent literature did not exist.

Theories of the Review

Theories and definitions regarding self-regulation differ in psychological literature. Therefore, it is useful for studies to define explicitly the characteristics they attribute to self-regulation. For the purposes of this review, we will define self-regulation as “exertion of control over the self by the self” (Muraven & Baumeister, 2000, pp. 247). Self-regulation then involves inhibiting or changing initial and dominant thoughts, feelings, or behaviors in order to maximize one’s own long-term rewards (Baumeister & Alquist, 2009; Muraven & Baumeister, 2000). According to this strength model of self-regulation, self-regulation is a finite resource; thus engaging in acts of self-regulation depletes this resource such that further immediate acts of self-regulation are impaired (Baumeister, Vohs, & Tice, 2007; Muraven & Baumeister, 2000). Particularly, the behavioral and emotional aspects of self-regulation will be examined as they are salient to the development of self-regulation in adolescence and are also important for relationship functioning (Papp & Witt, 2010).

Other theories of self-regulation include Gottfredson and Hirschi’s (1990) social control theory and social learning theory (Bandura, 1977). According to Gottfredson and Hirschi’s (1990) social control theory, parents teach adolescents to internalize the rules and principles of their society. When parent socialization fails, adolescents engage in deviant and problem behaviors. However, social control theory gives only limited consideration to socializing influences other than parents on the development of adolescent self-regulation. In the present review, we show evidence demonstrating that both peer and romantic relationships have significant socializing influences on adolescent self-regulation. We further posit that a bidirectional model has more utility to explain the development of self-regulation than does a unidirectional model. This bidirectional model is consistent with social learning theory (Bandura, 1977), which states that the individual is shaped by the environment while the also shaping the environment around them.

In addition, it is theorized that there are three primary relationship types that will influence and be influenced by the development of adolescent self-regulation. First, the parent-adolescent relationship is one of primary importance to adolescent self-regulation development (Moilanen, Shaw, & Fitzpatrick, 2010; Purdie, Carroll & Roche, 2004). Second, peer and friend relationships will be examined in the context of adolescent self-regulation development. In this review, the term “peers” will refer to those within the same class or grade at a school while the term “friends” will refer to self- or other-nominated individuals who claim friendship with another individual. However, peers and friends can, and frequently do, overlap in adolescent life and thus will be discussed within one section. Finally, the association between romantic partners and adolescent self-regulation development will be reviewed. Although the influence of romantic partners on adolescent development was once thought to be trivial, such a perspective is no longer prevalently held by adolescent researchers (Collins, 2003). Consistent with definitions in Collins, Welsh, and Furman (2009) and Giordano, Manning, and Longmore (2010), romantic relationships in adolescence will be defined as relationships having mutually acknowledged feelings of affection often paired with ongoing and voluntary interactions and possibly sexual behaviors between a couple.

Within each relationship context, characteristics associated with the quality of that relationship context will be reviewed. Although researchers have defined relationship quality differently across studies, a relationship will be considered to have high quality if it shows any of the following characteristics: (1) being supportive with low-negativity in interactions (e.g., Moilanen et al., 2010), (2) being characterized as being a caring environment (e.g., Fry et al., 2012), and (3) both members of the relationship expressing satisfaction with the relationship itself (e.g., Overall & Fletcher, 2010). Conversely, a low quality relationship context will be considered to lack these characteristics.

Social Relationships and Adolescent Self-Regulation: A Developmental Perspective

Based on extant research, we propose a developmental pathway of adolescent self-regulation that is bidirectionally related to relationship quality. The person may influence the quality of the relationship while also being influenced by this same relationship. For example, ecological systems theory and transactional models describe ways in which different relationships and communities may influence – and be influenced by – adolescent self-regulatory development (Bronfenbrenner, 1986; Sameroff, 2009). Adolescent researchers further emphasize the importance of considering the temporal development and bidirectional influence between youth and relationship context (e.g., Lerner & Castellino, 2002). Therefore, there is theoretical ground to suggest a bidirectional relationship between adolescent self-regulation and differing relationship contexts. In this review, we present evidence that a bidirectional model has more potential to explain the development of self-regulation than does a unidirectional model. We propose that this bidirectional relationship between adolescent self-regulation and relationship quality will be manifest in parent, peer, and romantic partner relationships. We also propose that each subsequent relationship context builds upon the quality of each previous relationship context in a series of soft-stages. Following a soft-stage model, as opposed to a hard-stage model, we believe that social relationship stages are composed of qualitatively distinct behavioral clusters and emerge in a progressive sequence as one stage gradually replaces the preceding one (Connolly, Craig, Goldberg, & Pepler, 2004). As such, we would expect to see similarities in the quality of each relationship context across development.

Associations among Relationships with Parents, Peers, and Romantic Partners

There are similarities and differences of regulatory demands across differing types of social relationships. For example, those who are socially excluded experience decrements in self-regulation (Baumeister et al., 2005). One can assume that social exclusion (e.g., rejection, isolation) as a detriment to self-regulation might extend across all relationship types. However, people can overcome these self-regulatory deficits with sufficient motivation such as the need to be accepted (DeWall, Baumeister, & Vohs, 2008), so those who strongly desire acceptance within a group may be motivated to overcome self-regulatory deficits.

Low levels or depletion of self-regulatory resources is associated with a host of poor outcomes for the individual and for relationship satisfaction and functioning across the various relationship types. For example, those who have experienced depletion of self-regulatory reserves are less likely to inhibit destructive relationship behaviors and less likely to activate constructive and beneficial relationship behaviors (Finkel & Campbell, 2001), are less willing to help others (DeWall, Baumeister, Gailliot, & Maner, 2008), and are more likely to make impulsive rather than deliberative decisions (Pocheptsova, Amir, Dhar, & Baumeister, 2009). Thus, those who have experienced self-regulatory depletion may not engage in pro-social tasks across relationship types. Self-regulatory depletion may also be associated with failing to present oneself to make the most favorable impression on others (Vohs, Baumeister, & Ciarocco, 2005), so those who have lower self-regulatory reserves may make a poorer impression on those they meet than those with better self-regulatory skills. Across parent, peer, friend, and romantic relationships, self-regulatory depletion and low self-regulatory skills are expected to be associated with a variety of negative social and relationship outcomes.

Developmentally, there is evidence that as adolescents age they have more ability to change their relationship with their parents (McGue, Elkins, Walden, & Iacono, 2005). Although research has not examined if adolescents have more ability to change their peer and romantic relationships as they age, with maturation and growing self-regulatory abilities, adolescents may have greater influence on relationships. However, to our knowledge, no systematic examination is currently available regarding a developmental trend in the influences that a child can exert across parent, peer, and romantic relationships.

As children and adolescents develop, they move through relationship stages, at first depending mostly on parents and then integrating an increasing dependence on and attachment to peers (Nickerson & Nagle, 2005) and later progressing from same-gender friendships into dyadic dating relationships (Connolly et al., 2004; Connolly, Furman, & Konarski, 2000). Children and younger adolescents report more communication with parents while older adolescents report more communication with peers than with parents. However, parents do continue to serve as important models and attachment figures into adolescence (Nickerson & Nagle, 2005). Finally, dating relationships increase not only in importance but also in prevalence as adolescents age (Carver, Joyner, & Udry, 2003).

Each relationship type in adolescence provides a unique contribution to development of adolescent self-regulation, but the importance of each relationship and its influence on the development of adolescent self-regulation changes as adolescents age (Seiffge-Krenke, 2003). Furthermore, each new relationship builds upon the quality of any previous relationships of the adolescent. For example, adolescents who had a better relationship quality with parents experienced more intimacy in romantic relationships than those adolescents with poor relationship quality; similarly, adolescents with higher friendship quality also had more committed romantic relationships (Ha, Overbeek, de Greef, Scholte, & Engels, 2010). Other researchers find that, in childhood, better infant attachment at age one is associated with greater competence with peers between ages six to eight. Better peer competence was in turn related to better quality in friendships at age sixteen, which, finally,

was related to less negative emotion in romantic relationships at age twenty (Simpson, Collins, & Salvatore, 2011).

Relationship and attachment style with parents is especially important to early adolescent development and remains important throughout later adolescence. Parent socialization continues to influence the development of self-control into adolescence (Hay & Forrest, 2006). For example, Doyle, Lawford, and Markiewicz (2009) longitudinally examined three cohorts of early, middle, and late adolescents (mean ages 13.1 years, 15.6 years, and 18.6 years respectively) and their attachment styles with mother, father, best friend, and romantic partner. Their findings suggested that adolescents who were insecurely attached to their father were more likely to be insecurely attached to best friends. Adolescents who were insecurely attached to both mother and best friends were also more likely to be insecurely attached to their romantic partner than were adolescents with other attachment styles. Thus, attachment with parents is related to adolescent peer, friend, and romantic relationship development and quality.

There is also evidence to show that peer relationships influence later romantic relationships of adolescents. For example, those adolescents who report having supportive friendships with few negative interactions also report similar supportive characteristics in their romantic partners, both concurrently and longitudinally (Connolly et al., 2000). As adolescents begin to develop romantic attachments, there is evidence that activities with romantic partners do not replace existing activities with friends in adolescence. Rather, activities with romantic partners are incorporated into existing activities with friends (Connolly et al., 2004). In contrast, Roth and Parker (2001) reported that 53% of girls and 32% of boys report having been excluded by a friend in favor of a romantic partner. The discrepancy in the findings of these two studies may be, in part, due to the fact that as adolescents are entering the dating world for the first time (Carver et al., 2003), they are still learning to balance the benefits and burdens of new relationships, and some adolescents may handle these new burdens on time, energy, and self-regulatory demands by exclusively focusing on a newly formed romantic relationship. Furthermore, the findings of Roth and Parker (2001) highlight individual differences in the nature and rates of such transitions highlighting that some adolescents make this transition more smoothly and skillfully than other adolescents do.

Parents and Adolescent Self-Regulation

An increasing amount of research has been conducted examining how parent-adolescent relationship quality may be associated with adolescent self-regulation (e.g., Finkenauer, Engels, & Baumeister, 2005), but little research has examined how adolescent self-regulation may influence parent-adolescent relationship quality. In a longitudinal study of 139 single-mother African-American families, family risk factors were negatively associated with maternal psychological functioning and successful parenting practices, which, in turn, were positively associated with adolescent behavioral self-regulation (Kim & Brody, 2005). Similarly, in a study of 12 year olds, adolescents' good self-regulation skills were found to negatively predict harsh parenting one year later. In turn, harsh parenting concurrently related to poor self-regulation skills (Brody & Ge, 2001), suggesting possible bidirectional relationships between adolescent self-regulation and parenting behaviors. A recent

longitudinal study reported that high levels of mother-son relationship quality predicted high levels of behavioral self-regulation among adolescent boys a year later even after controlling for the contributions of positive parenting (Moilanen et al., 2010).

Furthermore, there seems to be developmental changes in the strength of bidirectional relationship between parental influence and child/adolescent self-regulation. For example, previous research demonstrates a bidirectional relationship between maternal attachment and childhood self-control, but that this association is not significant by adolescence (Meldrum, Young, Hay, & Flexon, 2012). The results suggest the declining influence of the parent-adolescent relationship on the development of adolescent self-regulation.

In sum, despite a dearth of empirical studies directly examining transactional relations between adolescent self-regulation and parent-adolescent relationship quality, prior research appears to support a bidirectional model of adolescent self-regulation development and parent-adolescent relationship quality. Adolescents with poor self-regulatory abilities may be difficult for parents, which may be associated with poor relationship quality; on the other hand, adolescents with high-quality relationships with parents may be better able to develop good self-regulatory capacities.

Peers, Friends, and Adolescent Self-Regulation

Given the importance of peers and friends on adolescent development, the literature regarding the association between peer and friend relationship quality and adolescent self-regulatory abilities is surprisingly sparse. However, research does suggest that the development of adolescent self-regulation can be related to peer and friend relationship quality characteristics. For example, children and adolescents who are better able to behaviorally self-regulate are also more socially competent (McKown, Gumbiner, Russo, & Lipton, 2009). Similar research shows that young adults who are better emotion self-regulators tend to be more sensitive to others and more engaging in more pro-social activities. They also receive greater positive nominations from peers as well as a larger number of reciprocal friend nominations compared to young adults who are poor emotion regulators (Lopes, Salovey, Côté, & Beers, 2005). Thus, there appear to be both behavioral and emotional components of self-regulation that promote adolescents' ability to form high quality, caring, positive peer and friend relationships.

There is evidence that high quality relationships with peers and friends can promote adolescent self-regulation skills, but also that poor quality relationships with peers are associated with degradations in self-regulation skills. In 9-year-old children, pro-social peer behavior was associated with better self-control at age 10 (Meldrum & Hay, 2012). Additionally, high peer self-control was related to high adolescent self-control one year later (Meldrum, Young, & Weerman, 2012). Conversely, those adolescents with more deviant peer associations had lower self-regulatory skills and the interaction between these deviant peer associations and self-regulatory skills predicted higher antisocial behaviors about two years later (Gardner, Dishion, & Connell, 2008). In conclusion, what may be the determining factor as to whether the presence of these peers either bolsters or harms adolescent behavioral self-regulation may be the characteristics of the relationships with

these peers. Having high quality relationships may enhance one's own self-regulation, whereas having low quality relationships may be a detriment to one's behavioral self-regulatory abilities.

One of the ways that high quality relationships with peers and friends may promote adolescent self-regulation is through enhancing adolescents' emotion regulation ability. For example, those adolescents who reported perceiving a caring, supportive, and receptive camp group environment had higher scores on regulating positive and negative affect (Fry et al., 2012). Further research shows that those adolescents who experienced more companionship and sociability with peers at age 13 also had better emotion regulation at age 17 (Dhariwal, Connolly, Paciello, & Caprara, 2009). Conversely, other researchers found that feeling socially excluded depleted college undergraduates' (mean age of 18 years) self-regulatory reserves (Baumeister, DeWall, Ciarocco, & Twenge, 2005). Therefore, those adolescents who are not in a caring peer environment and feel socially excluded may experience drains to their emotion regulation reserves.

Taken together, there is evidence that adolescents who are poor behavioral and emotional regulators tend to have poorer quality peer and friend relationships but also that those adolescents whose peer environment is not supportive and accepting may have trouble developing self-regulatory skills. Hence, even though prior research has heavily focused on unidirectional effects the link between peer relationships and adolescent self-regulation, evidence exists to support a bidirectional model of the development of adolescent self-regulation in the context of peer and friend relationships.

Romantic Partners and Adolescent Self-Regulation

As many adolescents are beginning to date (Carver et al., 2003) by early to mid-adolescence, there is reason to suspect that adolescent behavioral self-regulation ability may promote romantic relationship quality. Indeed, Braithwaite, Selby, and Fincham (2011) found that adolescents could regulate their behaviors in order to improve the quality of their relationships. There is also evidence that those who lack sufficient self-regulation are less likely to keep promises they have made in a relationship. Peetz and Kammrath (2011) found that those who were more focused on feelings for a romantic partner were likely to make more promises than those less focused on their feelings for this partner. However, this focus on feelings was unrelated to actually keeping these promises. Rather, those who were better self-regulators were much more likely to keep their promises than those participants who were poorer self-regulators. Additionally, better self-regulators were better able to stay satisfied with a current partner and discount possible alternative romantic partners (Ritter, Karremans, & van Schie, 2010). Similarly, better self-regulators were more able to stay faithful to their partner than were poor self-regulators (Pronk, Karremans, & Wigboldus, 2011). Finally, prior research has reported that behavior regulation may occur when people feel that their partner has transgressed or committed an act that may be possibly destructive for their relationship (Finkel & Campbell, 2001). Indeed, undergraduate students with better self-regulation were more likely to accommodate their partners by responding constructively instead of destructively (Finkel & Campbell, 2001). Thus, it appears better self-regulators

have better quality romantic relationships – or at least feel that they have better quality relationships – than poorer self-regulators.

In addition, there is literature suggesting that emotion regulation is important to maintain quality of the romantic relationship context. Those adolescents and young adults who are better at regulating negative mood states are also better at managing conflict in their romantic relationships (Creasey, Kershaw, & Boston, 1999; Creasey & Ladd, 2004). In other words, some adolescents are better than others are at resolving relationship conflict possibly because they are better able to regulate their negative emotions during conflicts. Other research found that college students who felt that their relationship quality was threatened and were prone to ruminative thoughts were less able to change their negative thoughts about their partners to positive thoughts than those who were not prone to rumination (Jostmann, Karremans, & Finkenauer, 2010). Research further suggests that those who have better affect regulation are also more satisfied with their romantic relationship than are those with poor affect regulation (Brennan & Shaver, 1995). Therefore, emotion regulation may enable conflict resolution in relationships, which may have beneficial associations with relationship quality. Collectively, prior research suggests that those who are better emotion self-regulators may not only be more reliable romantic partners, but also are better at managing conflict, and consequently have higher quality romantic relationships than those who are poor emotion self-regulators.

While there is evidence that adolescent behavioral and emotional regulation can promote relationship quality, there is limited research examining the opposite direction of influence. Research in this area may be limited because a large part of previous research has focused on romantic relationships in adolescence as a predictor of negative outcomes. Nevertheless, some available research using young adult samples demonstrate positive effects of high quality romantic relationship on self-regulation. For example, among young adults, those who feel their partners are less satisfied with them were more likely to try to regulate their behaviors that displease their partners (Overall & Fletcher, 2010). Thus, when the quality of the relationship is not sufficient, one or both partners will be motivated to regulate their displeasing behaviors to try to increase overall relationship quality. In fact, in young adults, being in a romantic relationship with someone they loved helped to boost emotion regulation and this association was evidenced through autonomic reactivity as well as self-report measures (Schneiderman, Zilberstein-Kra, Leckman, & Feldman, 2011). Thus, being in a good quality romantic relationship may promote self-regulation while behaviors of one partner may initiate a need for the other member of the dyad to regulate behaviors in order to maintain the quality of the relationship, suggesting the influence of relationship quality on self-regulation.

In summary, prior research provides evidence suggesting a bidirectional relationship between adolescent self-regulation and romantic relationship quality. Those who are poor self-regulators have poorer quality romantic relationships and be less satisfied with the quality of their relationships than are skilled self-regulators, yet relationship quality also promotes self-regulatory abilities.

Conclusions and Directions for Future Research

As suggested by social learning theory (Bandura, 1977), there is evidence for a bidirectional association between adolescent self-regulation and social relationships – adolescent self-regulation ability is not only influenced by social relationships but is also actively involved in determining the quality of those social relationships. Evidence also exists to be consistent with the strength model of self-regulation (Baumeister et al., 2007), illustrating how lower levels (or depleted) self-regulation ability can negatively affect social relationships and how poor quality social relationships can contribute to depleting self-regulation ability. One the one hand, when examining the sum of research across the different relationship types, it appears that relationships with high negativity and low support – low quality relationships – are associated with decrements in self-regulation, whereas relationships that are warm and caring – high quality relationships – promote the development of self-regulation (e.g., Fry et al., 2012; Moilanen et al., 2010). One the other hand, extant research clearly demonstrates that adolescents who are skilled at self-regulation and who have not experienced regulatory depletion are more likely to have high quality relationships than are those with poor self-regulatory skills (e.g. DeWall, et al., 2008; McKown et al., 2009).

Developmentally, it is possible that rather than the quality of each social relationship (i.e., parents, peers, and romantic partners) building on a previous one, the continuity in the quality across social relationships can be attributed to self-regulatory abilities. That is, those who are good self-regulators are expected to have high quality relationships regardless of relationship type. In addition, because parents are a primary relationship influence on adolescent development, poor adolescent self-regulation skills may have a greater influence on parent-adolescent relationship quality than on later, secondary relationships, such as peer or romantic partner relationships.

While we are beginning to understand the bidirectional influences between self-regulation and social relationships in adolescence, there are still areas of weakness in the literature that need particular attention. First, researchers endeavor to examine the parent-child relationship, but more often, they actually examine the mother-child relationship. There is a paucity of research on the influence of fathers on adolescent self-regulation development, and future research should strive to include fathers. Second, most research on self-regulation has focused on inhibition of behavior and not on activation of behavior, and future research should examine differential effects between the influence of inhibition and activation of behavior on self-regulation and relationship quality. In extant research regarding relationship quality, there is evidence supporting the idea that initiating appropriate behaviors may be just as important to relationship quality and satisfaction as is suppressing inappropriate behaviors (Winterheld & Simpson, 2011). For example, trying not to say something inappropriate to your partner (inhibiting behavior) may be just as important for the success of a relationship as doing something for your partner that you may not wish to do (activating behavior). Third, extant research has heavily focused on heterosexual romantic relationships. A research focus on homosexual as well as heterosexual romantic relationships in adolescence would expand knowledge about the development of this understudied group of adolescents.

Fifth, prior research on adolescent romantic relationships has almost exclusively focused on academic and adjustment outcomes other than self-regulation. For instance, there are clear links between romantic relationships in early adolescence and depression (Joyner & Udry, 2000) or delinquency (Herrera, Wiersma, & Cleveland, 2011), and between adolescents' own academic achievement and their romantic partners' (Giordano, Phelps, Manning, & Longmore, 2008). Given self-regulations' firmly established associations with adolescent academic and adjustment outcomes, it is possible that engaging in an early romantic relationship as well as the negative development outcomes of depression and delinquency are all symptoms of poor self-regulation. Therefore, it may be important for future research to examine self-regulation as a potential common explanatory variable that is responsible for the associations between adolescent romantic relationships and various adjustment outcomes.

Finally, it would be beneficial for future research to compare the sources and types of data utilized in analyses as well as utilizing longitudinal data. Different studies have utilized different informants (e.g., self-report, parent-report, peer nominations, observational ratings). Thus far, results from studies utilizing these different sources of data seem to support consistently the idea that better self-regulators have better quality relationships. It is recommended that future studies should utilize multiple informants to improve reliability and predictive validity of a construct by minimizing method variances and informant biases. For example, extant research has found that maternal reports of self-control are more weakly related to delinquency than using adolescent reports of self-control (Meldrum, Young, Burt, & Piquero, 2013). In addition, longitudinal data are crucial for systematic examination of bidirectional influences between self-regulation and relationship context in adolescence. Cross-sectional approaches to longitudinal research, such as the one estimating bidirectional influences, often lead to biased estimates resulting in misleading interpretation of results (Cole & Maxwell, 2009). In particular, it is important for future research to consider differing types of relationship contexts in tandem and longitudinally as they develop to determine any shared influences.

In conclusion, most previous research has failed to evaluate the development of adolescent self-regulation as bidirectional. Yet, using a framework of bidirectional development between adolescent self-regulation and the quality of social relationships may be useful given that interpersonal relationships influence ecological conditions for adolescent development as well as that these relationships develop throughout adolescence. By examining a model of bidirectional influence, psychologists may better able to understand why some adolescents have successful relationships in their lives while their peers do not, and why some adolescents show better self-regulation while others show poor self-regulation. Understanding the development of adolescent self-regulation in such a dynamic model will provide critical insight towards the formulation of informed prevention and intervention efforts to promote healthy development in adolescence.

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