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FRIENDSHIP IN EMERGING ADULTHOOD: EXPLORING FRIENDSHIP QUALITY AS A
MEDIATOR BETWEEN GRATITUDE AND INTERPERSONAL APPRECIATION AND
LIFE SATISFACTION

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EXPLORING FRIENDSHIP QUALITY AS A MEDIATOR

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ABSTRACT

The current study explored friendship among the emerging adult population by investigating two aspects of appreciation from Adler & Fagley's (2005) appreciation model, gratitude and interpersonal appreciation, and their relations with friendship quality and life satisfaction. Both aspects of appreciation are related to enhanced social connections, including romantic relationships (e.g., Gordon et. al, 2012) and friendships (e.g., Lambert & Fincham, 2011). In addition, high quality friendships are associated with well-being (e.g., Demir & Wetekamp, 2007; Raboteg-Saric, & Sakic, 2013). Thus, the primary purpose of the research was to determine if friendship quality could potentially mediate the relationship between either of the aspects and life satisfaction while controlling for gender and the Big Five personality factors. Participants ($N = 357$) were undergraduate students at Rutgers University who completed an anonymous online survey. All partial correlations (controlling for gender and personality) were significant. Gratitude was positively associated with friendship quality (partial $r = .315, p < .001$), as was interpersonal appreciation (partial $r = .194, p < .001$). Gratitude was positively related to life satisfaction (partial $r = .132, p < .05$), as was interpersonal appreciation (partial $r = .126, p < .05$). Friendship quality was also positively related to life satisfaction (partial $r = .143, p < .01$). Two tests of mediation were conducted separately to analyze each aspect of appreciation. The Sobel tests of mediation revealed that friendship quality significantly mediated the relationship between interpersonal appreciation and life satisfaction ($Z = 1.96, p = .050$). Friendship quality was not found to mediate the relationship between gratitude and life satisfaction ($Z = 1.93, p = .053$). Follow-up tests of the significant interpersonal model and exploratory analyses of the gratitude model were conducted that examined individual aspects of friendship quality as possible mediators, rather than overall friendship quality. Gender and

personality were controlled in all analyses. Only the self-validation aspect of friendship quality significantly mediated the relationship between interpersonal appreciation and life satisfaction. Findings from the present study add to research on interpersonal appreciation and suggest interpersonal appreciation may influence life satisfaction of emerging adults through strengthening friendship quality.

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Introduction

According to Seligman and Csikszentmihalyi (2000, p. 5), psychology has predominantly emphasized a “disease model of human functioning” focusing on the suffering and psychopathology of individuals and communities. The emerging field of positive psychology has shifted the discipline’s focus to examine the strengths of human functioning, the factors that enable individuals to thrive and contribute to well-being (Seligman and Csikszentmihalyi, 2000). Within the area of positive psychology, numerous constructs have been developed, including the construct of *appreciation*.

Appreciation is a combination of cognition and affect and has been defined as “acknowledging the value and meaning of something – an event, a person, a behavior, an object - and feeling a positive emotional connection to it” (Adler and Fagley, 2005, p. 81). Fagley (2012; 2016) asserted that appreciation is a “higher-order construct” and encompasses eight aspects, which is denoted by the acronym: “HARPS-GLI.” They are: “Have” focus (focusing on what one has and valuing it), Awe (feeling awe/wonder in response to nature, beauty, or life itself), Ritual (engaging in routines or practices to foster appreciation), Present moment (engaging in mindful awareness of the present moment), Self/social comparison (using self/social comparison to foster appreciation), Gratitude (feeling gratitude to others for something such as help, gifts, or benefits), Loss/adversity (using experiences of loss/adversity to foster appreciation), and Interpersonal (noticing and valuing the contribution that relationships make to one’s life and wellbeing, and expressing it). Appreciation is considered to be both a state and a trait, similar to other emotions such as sadness or excitement; most individuals have the ability to experience temporary moments of appreciation (state) regardless of their disposition of appreciativeness. Some people are inherently more appreciative by nature or due to past experiences and are

therefore more likely to experience appreciation on an ongoing basis (trait) (Fagley & Adler, 2012); the latter will be the focus of the current study.

Review of Literature

Gratitude versus Interpersonal Appreciation

The present study involves two aspects of the appreciation model, *gratitude* and *interpersonal appreciation*. Both of these terms are relevant to appreciation in relationships but are two distinct entities and should be differentiated from one another, as well as from the other aspects of appreciation. The gratitude aspect of appreciation refers to “noticing and acknowledging a benefit that has been received whether from another person or a deity, and feeling thankful for the efforts, sacrifices, and actions of an ‘other’” (Adler & Fagley, 2005, p. 83). It involves a positive emotional response directed toward the agent that one feels purposely acted to create the benefit (Fagley, 2016). The term thus includes three components: a benefactor (the agent), a beneficiary (the recipient), and a benefice (the benefit itself) (Roberts, 2004). The lack of a benefactor may indicate that a situation represents a different aspect of appreciation than gratitude, such as the “have” focus aspect (e.g. being “grateful” for one’s job, which constitutes noticing and valuing what one has, thus representing the “have” focus aspect of appreciation) (Fagley, 2016). Interpersonal appreciation closely aligns with gratitude and is defined as “noticing, acknowledging, and feeling positively toward (appreciating) the people in our lives. It includes appreciating being cared about, being supported, having someone to talk to, and being understood by someone” (Adler & Fagley, 2005, p. 84). Interpersonal appreciation differs from gratitude, as it involves valuing the individual and the meaning they provide to the relationship rather than valuing particular benefits they bestow, as in the case of gratitude (Fagley, 2016).

Life Satisfaction

Life satisfaction (LS) is another construct that has gained attention in the positive psychology field but which has been studied prior to the discipline's emergence (Diener, Emmons, Larsen, & Griffin, 1985). LS is considered the cognitive component of the construct, *subjective well-being* (SWB), a term that may often be mistakenly labeled as *happiness*. SWB refers to how individuals evaluate the quality of their lives both at a given moment and over the course of time; it is comprised of positive affect, negative affect, and life satisfaction. (Diener, Oishi, & Lucas, 2003). The affective element consists of one's positive and negative emotions, whereas the LS component specifically focuses on the evaluation of a person's life. A person's satisfaction with life is determined by assessing the quality of one's life by comparing one's current state to his/her own chosen standards or criteria, thereby making the evaluation subjective (Diener et. al, 1985). The current study will target the cognitive dimension of SWB, that is LS.

Gratitude and Interpersonal Appreciation - Relationship with Life Satisfaction

The lower-order components of appreciation, particularly gratitude and interpersonal appreciation, have proven to be worthwhile areas of study, as researchers have demonstrated that both aspects are positively associated with LS (e.g., Adler & Fagley, 2005). For example, Adler and Fagley (2005) conducted a study with college students ($N = 420$) and assessed the relationship of the eight appreciation components with the components of subjective well-being, including LS. The authors utilized their Appreciation Scale, a 57-item scale measuring all eight aspects of appreciation (Adler & Fagley, 2005) and the commonly used Satisfaction with Life Scale to measure LS (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), a 5-item measure assessing the global evaluation of one's life. They found that gratitude ($r = .22$) and

interpersonal appreciation ($r = .23$) positively correlated with life satisfaction (both p 's $< .01$), revealing that greater amounts of appreciation are associated with higher levels of life satisfaction.

In fact, although research on interpersonal appreciation is scant, there is an abundance of additional literature demonstrating the positive relationship between gratitude and life satisfaction (e.g., Datu & Mateo, 2015; Kong, Ding, & Zhao, 2015; Peizhen & Feng, 2013). Given that personality may influence the relationship between the two variables, Wood, Joseph, and Maltby (2008) studied a sample of 389 college students to assess if gratitude still contributed to the variance in life satisfaction after controlling for the Big Five personality traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism. They found that gratitude accounted for an additional 9% of the variance in life satisfaction after taking into account the Big Five domains of personality; $\Delta R^2 = .09$; $F(1, 382) = 53.26$; $p < .001$.

Although the association between gratitude and life satisfaction appears to have been well-established, the aforementioned studies (e.g., Datu & Mateo, 2015; Kong et al., 2015; Peizhen & Feng, 2013; Wood et al., 2008) measured gratitude using the Gratitude Questionnaire-6 (GQ-6), a commonly used measure of trait gratitude (McCullough, Emmons, & Tsang, 2002). The GQ-6 includes six items, some of which are confounded with other constructs, such as other aspects of appreciation. For example, the GQ-6 includes an item, "I have so much in life to be thankful for," that assesses the "have" focus aspect of appreciation rather than gratitude (also noted by Fagley, 2016). Additionally, another popular trait gratitude scale, the Gratitude Resentment and Appreciation Test (GRAT; Watkins, Woodward, Stone, & Kolt, 2003), has the same issue as the GQ-6. Although the GRAT has been found to be positively correlated with the SWLS scale (Watkins et al., 2003), the GRAT scale also consists of items that shift away from

the definition of gratitude endorsed by Adler and Fagley (2005) and others (e.g., McCullough Kilpatrick, Emmons, & Larson, 2001). For example, McCullough and colleagues (2001) similarly conceptualized gratitude as “an emotional response to having received benefits from a person who rendered such benefits intentionally” (p. 257). Early research on the area of gratitude conducted by Tesser, Gatewood, and Driver (1968) also viewed the construct as consisting of the recipient perceiving the benefit as intentional, that the benefit was of cost to the benefactor, and the recipient’s value of the benefit. Despite convergence with the way gratitude has been defined in the literature, the GRAT includes items such as, “Oftentimes, I have been overwhelmed at the beauty of nature”; this item aligns more with the awe aspect of appreciation instead of gratitude. Therefore, the literature reveals that there are variations with the way gratitude is measured as it is often measured as a combination of different aspects of appreciation rather than strictly gratitude.

Mediation Models

This study will be the first known study to utilize such definitions of gratitude and interpersonal appreciation in closely examining a potential mechanism by which these aspects of appreciation influence life satisfaction. Previous studies have explored various mediators between gratitude and life satisfaction in hopes of explicating the link between the two variables (e.g., Datu & Mateo, 2015; Kong et al., 2015; Peizhen & Feng, 2013). Some intervening variables that have been studied include meaning in life (Datu & Mateo, 2015), positive and negative affect (Peizhen & Feng, 2013), and perceived social support (Kong et al., 2015). Although different mediating variables have been investigated, the mechanism by which gratitude influences life satisfaction remains unclear. The current study will analyze a mediator that has yet to be studied, *friendship quality*.

Gratitude and Interpersonal Appreciation – Impact on Relationships

Interest in exploring friendship quality as a mediator stems from the compelling research on the positive impact of gratitude and interpersonal appreciation on new social ties (e.g., Algoe, Haidt, & Gable, 2008), romantic bonds (e.g., Algoe, Gable, & Maisel, 2010; Gordon, Keltner, Impett, Kogan, & Oveis, 2012; Kubacka, Finkenauer, Rusbult, & Keijsers, 2011) and friendships (e.g., Lambert & Fincham, 2011). Research reveals that these aspects of appreciation are related to greater perceived social support (Kong et al., 2015) and promote positive feelings in relationships resulting in improved relational well-being (e.g., Algoe et al., 2010). Further, they are associated with increased likelihood of engagement in relationship maintenance behaviors that may help enrich interpersonal connections (e.g., Gordon et al., 2012; Kubacka et al., 2011; Lambert & Fincham, 2011). Relationship maintenance behaviors can encompass a range of behaviors from “habitual, routine behaviors”, such as taking out the garbage to “strategic and effortful behavior”, such as effectively responding to a partner in times of need (as cited in Dainton & Stafford, 1993).

The relationship between gratitude and greater perceived social support (Kong et al., 2015), may be partly supported by the broaden-and-build theory of positive emotions (Frederickson, 2004). Frederickson (2004, p. 147) theorized that positive emotions *broaden* or expand the range of peoples’ cognitions and actions in the moment and “*build* their enduring personal resources.” In the context of gratitude as a positive emotion, she argued that gratitude can trigger one to think and behave in a variety of altruistic ways (as a result of the benefit received) and ultimately help to create or even enhance one’s social resources over time. Social resources may be characterized as received social support, and thus the greater one’s received social support, the greater one’s perceived social support is expected to be (Kong et al., 2015).

Algoe (2012) proposed the *find, remind, and bind theory of gratitude*, in which she argues that experiences of gratitude lead people to *find* new and potentially valuable partners/friends or *reminds* them of existing, high quality persons in their lives; lastly, gratitude *binds* the benefactor and recipient and thus helps to strengthen the connection between the two. Algoe and colleagues (2010) used this framework in studying a sample of 67 heterosexual couples consisting of both students and staff on a college campus to measure the effects of gratitude on relationship quality. Participants completed daily diaries for two weeks and took note of the thoughtful actions exhibited by themselves and their partner, their emotional response of gratitude following the action (characterized by thankfulness, appreciation, and gratitude), and their daily relationship satisfaction and daily relationship connection. The researchers found that gratitude experienced due to a partner's actions was associated with increased relationship quality the next day, including improved relationship satisfaction and connection between partners.

Although the findings support that gratitude can be important for relationship well-being, Algoe et al. (2010) focused on measuring instances of the momentary emotion of gratitude rather than gratitude as a *trait*, also referred to as a disposition and one's tendency to feel grateful. The present work aims to target trait gratitude but acknowledges that experiencing specific moments of gratitude is how trait gratitude is manifested. Thus a greater number of specific moments of gratitude suggests someone has greater trait gratitude. Greater gratitude should yield long-term social benefits, as the positive effects of specific moments of gratitude compound over time. Algoe et al. (2008) also found that new sorority sisters' feelings of gratitude following a gift exchange with senior members predicted the quality of the relationships between the dyads one month later. Although trait gratitude was not the authors' focus, the findings shed light on the

role of the emotion of gratitude in the development of new social bonds, which one may extrapolate to the relation of trait gratitude to the development of new social connections.

Gordon et al. (2012) conducted a series of studies utilizing multi-method approaches to test their model of appreciation in romantic couples. Their model details that both feeling appreciated and being appreciative influence relationship maintenance behaviors, and they assert that appreciation serves as a “critical barometer by which people gauge the state of their relationship” (p. 258). They argue that feeling appreciated and being appreciative signal feelings of security in the relationship and that this results in positive appraisal of the other, thus increasing the likelihood of engaging in behaviors that will enhance the romantic bond. The researchers’ first study was a combined cross-sectional and daily experience study, conducted with a sample of racially diverse college students ($N = 78$ undergraduates, 65 women and 13 men) and focused on examining the association between appreciation and responsiveness to a partner’s needs. They used their instrument, the Appreciation in Relationships (AIR) Scale, a 16-item measure of appreciation that assesses both a partner’s feelings of being appreciated in the relationship and their appreciative feelings for the other, with the latter representing interpersonal appreciation (e.g. I often tell my partner how much I appreciate her/him) but is constrained to the context of one’s romantic relationship. The two subscales were found to correlate significantly ($r = .53$). Participants completed the AIR scale along with brief daily diary measures of appreciation, responsiveness to partner’s needs, and relationship satisfaction over fourteen days. The results from the first study revealed that individuals who felt more appreciated in their relationship reported being more appreciative of their partner as revealed both via the AIR’s Appreciative subscale and the daily measure of appreciation. Additionally,

more appreciative individuals, as measured by the AIR scale, were found to be more responsive to their partner's needs.

The researchers' second study was a combined longitudinal and daily experience study conducted with a sample of racially diverse college students ($N = 99$ undergraduates, 83 women and 16 men). The purpose of their second study was to assess the association between feeling appreciated and appreciating one's partner and relationship commitment along with the stability of the relationship over time. Participants completed the two AIR subscales along with brief daily measures of appreciation, commitment, and satisfaction at baseline over the course of seven days. At the 9-month follow-up, they completed the same measures of appreciation and commitment as they had at baseline along with a dating instability scale. The results of the second study found that on days that individuals felt more appreciative of their partner, they were more likely to be committed to their relationship the following day. Moreover, appreciation of partners at baseline predicted whether or not people stayed in their relationship nine months later.

The final study was conducted with a sample of 63 ethnically diverse heterosexual couples from a larger study and investigated whether appreciation affected the likelihood of individuals being responsive to a partner's needs via observation of the couple in the research laboratory. Participants completed the AIR subscales and a relationship satisfaction measure. Couples were also involved in a series of six conversations with their partner addressing moments of sacrifice, love, and suffering in the relationship. Two observers coded components of responsiveness during the interaction (e.g. understanding, validation, and caring). The results of the third study found that individuals who were more appreciative of their partners were observed to be more responsive and committed to their partner by outside raters, thus

strengthening and confirming the authors' prior self-report evidence. Overall, the authors' multiple findings reveal that both feeling appreciated and being appreciative—specifically exhibiting interpersonal appreciation, can positively affect how people think and behave in their relationships, helping to enhance the interpersonal bond and potentially even influencing the stability of the relationship in the future.

The findings from Kubacka et al. (2011) add to the existing literature on the long-term benefits of gratitude in romantic relationships. Kubacka et al. (2011) conducted a longitudinal study with newlyweds that explored the effects of gratitude in the dyad over the course of four years. They found that individuals who experienced gratitude at one time point were more likely to report engaging in various relationship maintenance behaviors in the future even when controlling for relationship satisfaction. Gratitude was assessed using a four-item measure in which one item was “If I were to make a list of everything I am grateful for to my wife (husband), it would be a very long list.” This item assesses trait gratitude but conflicts with the authors' conceptualization of the term, as they refer to gratitude as a “partner-praising emotion,” defining it as “a positive emotional connection to the partner, which is not triggered by a specific benefit but by the acknowledgement and appreciation of a partner's value to the self (p. 1363).” Although the authors measured trait gratitude, their explanation of the construct appears to correspond more closely to an interpersonal appreciation lens.

Of note, is the research by Lambert and Fincham (2011), in which they conducted several studies primarily investigating the impact of “gratitude” on friendships among the emerging adult population, which Arnett (2000) refers to as individuals between the ages of 18 to 25. Their first study included 159 participants (137 women and 22 men) and examined the relationship between gratitude expression and engaging in relationship maintenance behavior,

which was operationalized as disclosing relationship concerns. Participants had the option of reporting about a romantic partner or a close friend, completed a three-item measure of expressing gratitude in relationships (e.g. item: “I express my appreciation for the things that my partner does for me”), and completed a measure evaluating one’s level of comfort sharing their concerns with one’s partner/friend. They found that gratitude expression was associated with higher levels of comfort in expressing relational issues even when gender was controlled. In an experimental study, Lambert and Fincham (2011) studied 225 undergraduates (200 women, 25 men) who reported on their best friend and completed the same comfort measure but were randomly assigned to either an expression of gratitude condition, a condition involving thoughts of pleasant activities shared with a friend, or a no-treatment control group. Although the authors labeled the first condition as an expression of gratitude, the task may be better viewed as an interpersonal appreciation intervention, as participants engaged in a writing assignment detailing what they appreciate about their best friend. The authors replicated their findings from the first study but through an experimental design, in which the gratitude group exhibited higher levels of the relationship maintenance behavior. Finally, Lambert and Fincham (2011) conducted another experimental study with 74 undergraduates (59 women, 15 men) who were randomly assigned to one of four writing task groups. Variables of interest were positive perception of the partner and comfort in expressing relationship issues. The manipulated condition involved participants engaging in the behavior of expressing gratitude toward one friend over three weeks. It is possible that the task involved a combination of participants expressing gratitude for helpful acts from their friends as well as expressing overall appreciation for the friend as a person, and thus, it remains unclear how gratitude was conceptualized. Nevertheless, the experimental group yielded statistically significant results, as they had higher positive perception of their friends and

a higher degree of comfort in sharing concerns compared to the other groups, even over one group who engaged in writing about what they appreciated regarding their friend. This finding may reveal the importance of the expression component in interpersonal appreciation.

Given that gratitude and interpersonal appreciation can increase social closeness and foster relationship growth in various types of social bonds, these constructs may be essential in the maintenance and development of high quality friendships. Despite the promising findings in this area, there continues to be limited research exploring the two aspects of appreciation in the context of friendships, especially when compared to other forms of relationships, such as romantic bonds. Also, several of the studies by Gordon and colleagues (2012) had a higher ratio of women to men in their samples without controlling for gender, thereby being unable to examine gender differences in appreciation and their potential influence on the findings. Furthermore, there is variability with the measurement of gratitude in the existing literature whereas the present work aims to measure trait gratitude (rather than state gratitude or expression of gratitude) and interpersonal appreciation and conceptualize them as separate constructs in examining their influence in friendships.

Social Support and Friendships – Relationship with Well-being and Life Satisfaction

Research has demonstrated that social support positively influences well-being and life satisfaction across age (e.g., Dumitrache, Windle, & Rubio Herrera, 2015; Siedlecki, Jeswani, Salthouse, & Oishi, 2014). In addition to the psychological benefits, social support has even been shown to result in favorable physical health outcomes, even to the extent of decreasing peoples' risk of mortality (e.g., Berkman, 1984). Such associations relate to the "belongingness hypothesis" a term coined by Baumeister and Leary (1994). The hypothesis posits that humans are not only social beings but have an innate desire to specifically seek out high quality, stable,

and enduring relationships, as a sense of belonging in a social sphere is critical to well-being and survival. Ryan and Deci (2000) propose a similar view through their self-determination theory, suggesting that *relatedness*, or “the need to feel belongingness and connectedness with others,” (p.73) is one of three universal and inherent psychological needs that influence human motivation and promote well-being. Barrera and colleagues (1981) defined the term social support as “various forms of aid and assistance supplied by family members, friends, neighbors, and others” (p. 435). Social support can further be conceptualized as including objective aspects, such as network size and frequency of social contact along with more subjective components, such as satisfaction with and quality of support (Dumitrache et al., 2015). Studies that examined the association between the different indices of social support and life satisfaction found that it was the quality of the social support that made the most significant contribution to life satisfaction (e.g., Berg, Hassing, McClearn, & Johansson, 2006; Pinquart & Sörensen, 2000). In the context of social support, *friendship quality* is an important mediating variable to explore, as friendships are a form of relational support that are essential to well-being throughout the human life-span (e.g., Demir & Weitekamp, 2007; Litwin & Shiovitz-Ezra, 2006; Marion, Laursen, Zettergren, & Bergman, 2013; Parker & Asher, 1993;). Friendship can be conceptualized as a “voluntary interdependence between two persons over time, which is intended to facilitate socio-emotional goals of the participants, and may involve varying types and degrees of companionship, intimacy, affection, and mutual assistance (as cited in Hays, 1988, p. 395).” Friends more than family members may be more likely to share commonalities in life experiences and interests due to similarities in age (Pinquart & Sörensen, 2000) further contributing to the uniqueness of this social bond. The present study aims to focus on emerging

adults, as friendship in this population in the developmental lifespan has been less studied (Swenson, Nordstrom, & Heister, 2008).

High quality friendships, in particular, may be an important contributor to positive evaluations of one's life for numerous reasons. Berndt (2002) argued that "a high quality friendship is characterized by high levels of prosocial behavior, intimacy, and other positive features, and low levels of conflicts, rivalry, and other negative features" (p. 7). Rabaglietti and Ciairano (2008) described high quality relationships with peers and friends to include support, intimacy, and reciprocity. Close friends over acquaintances are more likely to build our self-esteem (Pinquart & Sörensen, 2000), offer a high degree of companionship, celebrate joyous moments in one's life, be responsive to one's distress and needs, and serve as a protective factor against adverse life experiences by providing both emotional and instrumental support even at inconvenient times (Gillespie, Lever, Frederick, & Royce, 2015). Of significance, is the growing body of literature showing that high quality friendships are related to well-being and life satisfaction (e.g., Demir & Wetekamp, 2007; Raboteg-Saric, & Sakic, 2013). Demir and Weitekamp (2007) conducted a study with 423 racially diverse students (300 women, 123 men) from a university and examined the correlation between friendship quality and happiness. Friendship quality was assessed using the McGill Friendship Questionnaire-Friend's Functions (MFQ-FF; Mendelson & Aboud, 1999), a 30-item scale measuring six features of friendship: stimulating companionship, help, intimacy, reliable alliance, emotional security, and self-validation. Happiness was viewed as subjective well-being, as happiness was measured using the SWLS scale and the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The study found that friendship quality was positively correlated with SWB (which the authors called happiness) even when controlling for personality and number of

friends, thereby indicating that the quality of our friendships plays a role in well-being, even when factoring in personality and the size of one's social network. Limitations of the findings include the ratio of women to men in the sample along with the use of aggregate subjective well-being scores as the outcome measure rather than LS, the focal construct in the present research. Another study conducted by Raboteg-Saric and Sakic (2013) analyzed the effects of friendship quality on adolescent well-being among 401 high school students from two Croatian high schools. Friendship quality was assessed via the Friendship Quality Scale (FQS; Bukowski, Hoza, & Boivin, 1994) that includes scales assessing four features of friendship: companionship, help/aid, security, and closeness. A strength of the study was that life satisfaction and happiness were measured separately. LS was measured via the Student's Life Satisfaction Scale, (SLSS; Huebner, 1991) a 7-item measure assessing individuals' overall life satisfaction. The findings revealed that higher levels of friendship quality were associated with greater life satisfaction. Some short-comings of the study include the lack of the racial diversity in the sample and the focus on adolescent friendships. The present study includes a more racially/ethnically diverse sample of participants and explores friendships in the emerging adult population. Nonetheless, the findings speak to the importance of the particular aspects of friendships being vital to well-being.

Emerging Adulthood

Interest in studying the emerging adult population arises from research noting the numerous life challenges (Arnett, 2000; Beiter et al., 2015) and mental health issues experienced by individuals in this group (Blanco et al., 2008; Kessler et al., 2005). Jeffrey Arnett coined the term, *emerging adulthood*, describing it as a unique period in the developmental lifespan occurring between the ages of 18 and 25 that is characterized by a variety of transitions and life

changes, such as changes in residential status, education and employment, autonomy, and relationships (Arnett, 2000). A major life transition that often occurs for many individuals during this period is the pursuit of a college education. Attending college presents many stressors for emerging adults, such as academic performance and pressure to succeed, leaving home and being independent from one's family, and navigating new social relationships (Beiter et al., 2015). Exposure to these multiple transitions may contribute to the disruption in well-being that is evident among emerging adults (e.g., Blanco et al., 2008; Farabaugh et al., 2015; Kessler et al, 2005). Conley and colleagues (2014) conducted a study with 2,095 undergraduate students to assess their mental health functioning during their first year of college. They found that participants experienced an increase in psychological distress and decrease in social well-being following their first year of college. In addition, the age of onset for a variety of psychological disorders occurs during late adolescence and early adulthood (Kessler et al, 2005). Depression, anxiety, and substance use disorders are particularly prevalent among the emerging adult population (Kessler et al, 2005; Blanco et al., 2008), and suicide is the third leading cause of death among college students (Farabaugh et al., 2015). Overall, emerging adulthood is a period in the lifespan that may present a host of unique, personal and psycho-social challenges to navigate, thus making it an important developmental stage to study.

Friendship in Emerging Adulthood. The research on friendship during emerging adulthood is limited (Swenson, Nordstrom, & Heister, 2008), despite the literature demonstrating the importance of social relationships during this developmental period. Erik Erikson's theory of psychosocial development proposes that the primary developmental task during late adolescence and into young adulthood is to form intimate and loving relationships (Erickson, 1963). Swenson, Nordstrom, and Heister (2008) conducted a study with 271 first year undergraduates to

assess the impact of friendships in facilitating the transition into college. Through their use of friendship quality and attachment measures, they found that friendships with high school friends and new college friends were associated with more positive outcomes when adjusting to college, providing academic, social, and emotional benefits. The significance of peers in the lives of emerging adults is further supported by the study conducted by Fraley and Davis (1997), as they found that peers, including friends and romantic partners, rather than parents became the main attachment figures for the majority of their sample of undergraduate students. Although emerging adults are a vulnerable group, quality social relationships may serve as a protective factor during the instability and life changes encountered by the population (Swenson, Nordstrom, & Heister, 2008).

Gender Differences

Research has revealed gender differences in the areas of gratitude, life satisfaction, and friendship, thereby providing a rationale for controlling gender in the present study. This research is discussed in the following sections.

Gratitude. The existing literature demonstrates that women and men may vary in their experiences with gratitude. Kashdan and colleagues (2009) conducted three studies exploring several aspects of gender differences in gratitude. The researchers' first study included a sample of 288 college students ($N = 205$ women, 83 men) and assessed the disparities between women's versus men's evaluations of gratitude expression. Participants were told to imagine the experience of expressing gratitude to a benefactor and rated on a 7-point scale the degree to which expressing gratitude was common/novel, simple/complex, easy/difficult to predict the outcome, not a conflict/large conflict in weighing the costs and benefits, uninteresting/interesting, and boring/exciting. The results from the first study found that

women's appraisals of gratitude expression were rated as less novel, complex, conflicting, and less difficult to predict the outcome as well as more interesting and exciting compared with men's evaluations. The authors proposed that such findings may suggest that men may have less experience with gratitude expression, may have more difficulty in predicting its effects, and may evaluate the costs and benefits of expressing gratitude differently than women—viewing it as more costly and less beneficial. The researchers' second study included a sample of college students and older adults and involved examining gender differences in trait gratitude and evaluations after receiving a gift from a benefactor. Trait gratitude was measured using the GQ-6, and participants also provided a narrative detailing a meaningful experience of gratitude they had in the past week. Participants rated their gratitude experience on a 7-point scale in the following areas: intensity of gratitude felt, the unpleasant/pleasant nature of the experience, the degree of burden felt, and the extent to which they felt inclined to engage in prosocial behavior following their experience. The results of the second study indicated that women exhibited greater trait gratitude than men on the GQ-6 measure. The narratives also revealed imbalances with the gender of the benefactor; for women, there was a more even balance of gifts received from both genders, however, the benefactor for men was more likely to be women. Moreover, the authors also found that women reported experiencing more intense levels of gratitude from their interaction, reported more pleasant feelings, and rated the experience as being less of a burden compared to men. The authors' third study examined a sample of college students, and the purpose was to investigate gender differences in the benefits of gratitude for psychological well-being over the course of three months. Well-being was viewed in the context of self-determination theory, and included satisfying the needs of relatedness and autonomy. The results from the third study found that gender moderated the impact of gratitude on well-being

during the three month period. For women, gratitude at time one was positively associated with satisfying the needs of relatedness and autonomy three months later in contrast to non-significant findings for men. The authors argue that the gender differences in gratitude found in their studies may be partly supported by broader mechanisms, such as differences in the socialization of the genders, particularly with women and men typically diverging in their expression of emotions and in their value systems.

Algoe, Gable, and Maisel (2010) also found gender differences in the evaluation of receiving a benefit in their study that examined the effects of gratitude on relationship quality in heterosexual couples. Part of their study involved participants reporting both their emotional response of gratitude following a partner's thoughtful actions and a single item measure assessing participants' rating of feelings of indebtedness. The findings indicated a statistically significant difference between gratitude and indebtedness for men ($r = .39, p < .001$) compared to women ($r = .26, p < .001$), revealing that men may be more likely to evaluate the receipt of a benefit as being a combination of feeling grateful and feeling indebted to the benefactor.

Gordon, Musher-Eizenman, Holub, and Dalrymple (2004) focused on exploring gender differences in gratitude among children by coding the themes in their essays that detailed what they are thankful for. They found that the genders differed on what they were grateful for, as girls expressed more gratitude for aspects of their interpersonal relationships whereas boys' gratitude themes emphasized material objects. An experimental study conducted by Ventimiglia (1982) found that women were more likely to express gratitude toward the benefactor who opened the door for them compared to men. Krause (2006) conducted a study assessing the psychological and physical impact of feeling grateful to God. One finding from the study revealed that women experienced more gratitude toward God than did men. Altogether, the

findings from the research seem to indicate that women possess more trait gratitude, are more likely to have positive appraisals when receiving a benefit and expressing gratitude, and thereby may explain why they reap more benefits from the emotion than men.

Life Satisfaction. The results of research investigating gender differences in life satisfaction are mixed. Although some studies have demonstrated greater life satisfaction for boys (e.g., Goldbeck, Schmitz, Besier, Herschback, & Henrich, 2007; Kaye-Tzadok, Kim, & Main, 2017) and men (e.g., Meggiolaro & Ongario; 2015), other studies revealed that women reported higher levels of life satisfaction (e.g., Al-Attiah & Ramzi, 2016; Kaya, Tansey, Melekoglu, & Cakiroglu, 2015) compared to men. Findings may be inconsistent across studies due to the various ways life satisfaction has been measured by researchers and the influence of other variables, such as age (Al-Attiah & Ramzi, 2016) and culture (Zweig, 2015). Nonetheless, given that there is some evidence of gender differences in the area of life satisfaction, it is important to control for gender in the current study.

Friendship. High quality friendships are important for the well-being of both genders (Gillespie et al., 2015), however, there is robust evidence demonstrating that there are qualitative differences between women's and men's friendships (e.g., Barth & Kinder, 1988; Caldwell & Peplau, 1982; Demir & Orthel, 2011; Elkins & Peterson, 1993; Felmlee, Sweet, & Sinclair, 2012; Roy, Benenson, & Lilly, 2000; Warris & Rafique, 2009). As a whole, women have been found to prioritize their social relationships more than men, and they more often define themselves based on their bonds with others whereas men are more likely to value an identity that is characterized by independence (Felmlee, Sweet, & Sinclair, 2012). Demir and Orthel (2011) conducted a study with 382 racially diverse college students (251 women, 131 men) to examine the disparity in the quality between women's and men's same-sex friendships.

Friendship quality was assessed using the MFQ-FF (Mendelson & Aboud, 1999), and friendship conflict was measured via the Friendship Conflict Scale (Demir & Weitekamp, 2007). The study found that women reported experiencing more high quality and low conflict friendships than men. Such findings may be corroborated by studies that have found that women reported more emotional closeness (Johnson, 2004) and trust (Warris & Rafique, 2009) in their friendships. Results from a study of adolescent and young adult friendships showed that the women in both age groups reported a greater need to provide comfort to a close friend in difficult times and to celebrate the joyous moments in their friends' lives compared to men (e.g., Roy, Benenson, & Lily, 2000). Caldwell and Pelau (1982) also found that women's friendships involve more time devoted to personal self-disclosure whereas men spend more of their friend time engaging in an activity of mutual interest, such as a physical activity, or talking about an activity rather than sharing intimate details of their lives. Wright (1982) characterized the gender differences in friendship by describing women's friendships as "face-to-face" and being focused on the well-being of the other whereas men's friendships are often "side-by-side" and center around an external, shared activity (p.8). Overall, the literature points to the idea that women may experience emotionally richer and more supportive friendships than men.

The Current Study

The current research explored two constructs among emerging adults that seem to be valuable in social relationships and influential in life satisfaction –gratitude and interpersonal appreciation. Interpersonal appreciation is a more recently developed construct that is related to, but also a unique entity from, gratitude. Thus, it has been studied less than gratitude. Also, researchers have often used measures of gratitude that encompass additional aspects of appreciation, thereby making it unclear how much of the link between "gratitude" and life

satisfaction is actually due to gratitude rather than other components of appreciation. As a result, the current study assessed gratitude using a more narrowly defined measure. The two aspects of appreciation were conceptualized and measured as distinct constructs to provide a clearer understanding of their individual relationships with friendship quality and life satisfaction. As the literature makes apparent the positive influence that gratitude and interpersonal appreciation can have on relationships and the critical role that quality friendships have in shaping our well-being, these points provide support in analyzing friendship quality as the mechanism linking the variables. Although each leg in the two tripartite models has been researched, no studies have investigated the relationship of the various components of the models together, exploring friendship quality as a mediator between gratitude and/or interpersonal appreciation and life satisfaction among the emerging adult population, which is the purpose of the current study. Showing that friendship quality may serve as a mediator between these constructs would provide a greater understanding of how gratitude and interpersonal appreciation may be powerful ingredients for maintaining and strengthening the quality of friendships among emerging adults and how these high caliber bonds with friends may be a key source in determining the degree to which we are satisfied with our lives.

Based on the findings of prior research, it is hypothesized that gratitude and interpersonal appreciation both individually contribute to friendship quality (H1a & H1b) and life satisfaction (H2a & H2b) when the variables of gender and personality are controlled. Also, it is hypothesized that friendship quality is positively associated with life satisfaction when gender and personality are controlled (H3). Given these hypothesized relationships, the main hypotheses are that interpersonal appreciation and gratitude have their effect on life satisfaction through their effect on developing quality friendships, thus friendship quality serves as a

mediator between these two aspects of appreciation and life satisfaction even when gender and personality are taken into account (H4a for the model with interpersonal appreciation and H4b for the model with gratitude). (*See Figures 1 and 2 for proposed mediation models*).

Method

Participants

After data cleaning was conducted (discussed in further detail in data cleaning section), the final sample included 116 male and 241 female undergraduate students at Rutgers University ($N = 357$). Participants were required to be ≥ 18 to provide informed consent. As the target population was “emerging adults,” only those participants aged 18 to 25 were included in the final sample (Arnett, 2000). Responses from participants outside of the specified age range, 18 to 25, were deleted ($n = 1$, with respondent being 35-years-old). Participants were enrolled in an introductory psychology course at Rutgers University and were recruited through the Psychology Department’s subject pool, which lists many research studies that can fulfill their research credit requirement for the course. Ethnicity of the final sample was Asian ($n = 153$, 42.9%), White ($n = 109$, 30.5%), Latino/a ($n = 45$, 12.6%), African-American/Black ($n = 28$, 7.8%), and Other ($n = 22$, 6.2%).

Procedure

Participants who chose to participate in this study completed an anonymous online survey created in Qualtrics, containing measures of appreciation, friendship quality, life satisfaction, and the Big Five personality traits followed by demographic questions, addressing gender, age, and race/ethnicity. Participants were able to complete the study whenever they chose and could gain access to it on a University computer or personal laptop/mobile device via the Sona software used by the Psychology Department’s subject pool. Interested participants were sent a link

directing them to the study, that first displayed the informed consent document outlining a brief description of the study, a statement indicating that their participation would be anonymous, and the study's expected duration. The total time for completion of questionnaires was expected to be approximately 30-35 minutes based on the number and content of items. The survey was designed so that every question required a response to be able to continue to the next page, which prevented missing values. Participants who completed the study in its entirety automatically received .5 research credit via the psychology subject pool's Sona software. Participants were asked again, at the end of the survey, whether or not they wanted their anonymous responses to be included in the research. Responses of those who declined were deleted from the data set ($n = 2$).

Instruments

Appreciation. The 57-item Appreciation Scale (Adler & Fagley, 2005) was used to measure gratitude and interpersonal appreciation. The scale is comprised of subscales that correspond to the eight aspects of appreciation previously mentioned. The present study had participants complete the full scale, but the gratitude and interpersonal appreciation subscales were of primary interest for analyses. Adler and Fagley (2005) reported reliability values of .76 for the gratitude subscale and .78 for the interpersonal appreciation subscale. They also reported evidence of validity. Fagley (2012) reported somewhat higher reliability: .79 for the gratitude subscale and .83 for the interpersonal subscale. The items are rated from 1-7. In the current study, coefficient alpha was .77 for the gratitude subscale and .83 for the interpersonal appreciation subscale (see Table 1).

Friendship Quality. The McGill Friendship Questionnaire-Friend's Functions (MFQ-FF, Mendelson & Aboud, 1999) was used to measure positive aspects of friendship quality. The

MFQ-FF contains subscales assessing six features of friendship quality including stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security.

Respondents assessed the perceived friendship quality of a specific friend and rated the degree to which their friend satisfied the friendship functions. An overall score comprised of the six subscale scores was used to measure friendship quality. Mendelson and Aboud (1999) reported coefficient alphas ranging from .84 to .90 and established adequate validity. The thirty items are rated from 0-8. In the current study, the coefficient alphas were .88 for Stimulating Companionship, .87 for Help, .88 for Intimacy, .92 for Reliable Alliance, .87 for Self-Validation, .87 for Emotional Security, and .97 for the total score (see Table 1).

Life Satisfaction. The Satisfaction with Life Scale (SWLS, Diener et al., 1985) was used to measure life satisfaction. The scale measured the degree to which respondents are satisfied with their lives overall. Diener et al. (1985) demonstrated a reliability of .87. Pavot and Diener (1993) indicated coefficient alphas between .89 to .79 and reported evidence of validity. The five items are rated from 1-7. The current study yielded a coefficient alpha of .86 (see Table 1).

The Big Five Personality Traits. The Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) was used to measure the Big Five personality traits, including openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. John and colleagues (2008) reported coefficient alphas ranging from .87 to .79 and indicated evidence of validity. The forty-four items are rated from 1-5. In the current study, the coefficient alphas of the subscales were .71 for Openness, .77 for Conscientiousness, .84 for Extraversion, .80 for Agreeableness, and .81 for Neuroticism (see Table 1).

Data Screening

Deleted cases. The online survey included 373 responses at the time of data cleaning and screening. Some participants completed the survey twice (so only the first response was included in the data) ($n = 4$) and one participant never completed the survey ($n = 1$). Responses from participants outside the specified age range, 18 to 25, were deleted ($n = 1$, with respondent being 35-years-old). The survey required participants to respond to every assessment item; thus there were no missing values. The duration for survey completion was converted from seconds to minutes to assess responses that were completed under the three minute cut-off mark, which is how long the survey takes to complete if “answering” items without reading the questions. Cases that included survey completion times that were under three minutes were deleted ($n = 3$). Responses of one participant who identified as transgender were deleted to create gender categories that were large enough to be analyzed. Participants who did not want their data to be part of the research study were deleted from the data set ($n = 2$). Extreme univariate outliers were deleted ($n = 1$), and multivariate outliers were deleted ($n = 4$). The final number of cases that was part of the study sample was 357.

Outliers. Data were assessed for univariate outliers, which were identified as cases with an extreme score on a variable (more than 3 times the interquartile range) and represented by SPSS in a box-and-whisper plot as stars. Data were also checked for multivariate outliers using the Mahalanobis test (Meyers, Gamst, & Gaurino, 2017). Four cases exceeded the critical value of 26.124.

Normality. Normality and linearity were assessed by checking for the skewness and kurtosis of variables and analyzing the data via histograms and scatter plots. One variable had a skewness value greater than -1 (Gratitude subscale on the Appreciation Scale; skew = -1.568).

To address the extreme variable, a reflection and square root transformation was performed (Meyers, Gamst, & Gaurino, 2017) on the gratitude variable. Results were analyzed using both the untransformed gratitude variable and the transformed variable. A decision was made to report results using the untransformed gratitude variable, as the significance of the results remained the same in both analyses.

Results

Descriptive Statistics

Descriptive statistics were computed for all quantitative variables, including the means, standard deviations, ranges, and coefficient alphas of the Gratitude and Interpersonal Appreciation subscales, the McGill Friendship Questionnaire-Friend's Function (MFQ-FF) and its subscales, the Satisfaction with Life Scale (SWLS), and the Big Five Inventory (BFI) subscales. Coefficient alphas ranged from .97 to .71 (see Table 1).

Bivariate Correlations

Bivariate correlations between all variables of interest are reported in Table 2. As expected, the Gratitude and Interpersonal Appreciation subscales of the Appreciation Scale showed significant positive correlations with the MFQ-FF and SWLS total scores with correlations ranging between .25 to .47, demonstrating that higher levels of gratitude and interpersonal appreciation are associated with greater friendship quality and life satisfaction. A significant positive relationship was also found between the MFQ-FF and SWLS ($r = .255, p < .001$), suggesting that greater friendship quality is associated with higher life satisfaction. Finally, as expected based on prior research, there were significant gender differences in gratitude and friendship quality, as indicated by the significant correlations of these variables with gender. Significant gender differences were also observed on interpersonal appreciation.

Partial Correlations

Partial correlations were computed to determine the relationships between the pairs of variables in the two proposed mediation models while controlling for gender and personality (see Table 3). The results were consistent with all five of the hypotheses proposed for the partial correlations. The Gratitude subscale had significant positive partial correlations with the MFQ-FF (partial $r = .315, p < .001$ (H1a), as did the Interpersonal Appreciation subscale (partial $r = .194, p < .001$) (H1b). The Gratitude subscale also had significant positive partial correlations with the SWLS (partial $r = .132, p < .05$) (H2a), as did the Interpersonal Appreciation subscale (partial $r = .126, p < .05$) (H2b). These results indicate that both gratitude and interpersonal appreciation each are positively associated with friendship quality and life satisfaction, even when controlling for gender and personality. The MFQ-FF had a significant positive partial correlation with the SWLS (partial $r = .143, p < .01$) (H3), indicating there is a positive association with friendship quality and life satisfaction even when gender and personality are taken into account.

Tests of Mediation

Two multiple regression analyses were conducted to test the two proposed mediation models. Gender and personality were controlled in each analysis. The subscale scores for Gratitude and Interpersonal Appreciation on the Appreciation Scale were analyzed separately. In order to test the statistical significance of the mediation models, the Sobel test was used. The Sobel test involves determining if the pathway between the independent variable and dependent variable is significantly reduced once the mediator is part of the analysis (Meyers, Gamst, & Gaurino, 2017).

The first model tested friendship quality as a possible mediator between interpersonal appreciation and life satisfaction (H4a). In the interpersonal appreciation mediation model (see Figure 3), interpersonal appreciation had a significant direct effect on life satisfaction ($\beta = .127$, $p < .05$) and on friendship quality ($\beta = .197$, $p < .001$). When interpersonal appreciation and friendship quality were entered into the regression model, friendship quality had a significant effect on life satisfaction ($\beta = .122$, $p < .05$), and interpersonal appreciation had a non-significant effect on life satisfaction ($\beta = .103$, $p = .059$). The Sobel test yielded a statistically significant result ($Z = 1.96$, $p = .050$), suggesting that friendship quality mediates the relationship between interpersonal appreciation and life satisfaction when gender and personality are controlled.

The second model tested friendship quality as a possible mediator between interpersonal appreciation and life satisfaction (H4b). In the gratitude mediation model (see Figure 4), gratitude had a significant direct effect on life satisfaction ($\beta = .130$, $p < .05$) and on friendship quality ($\beta = .313$, $p < .001$). When gratitude and friendship quality were entered into the regression model, friendship quality had a significant effect on life satisfaction ($\beta = .112$, $p < .05$), and gratitude had a non-significant effect on life satisfaction ($\beta = .095$, $p = .085$). Although close, the Sobel test yielded a non-significant result ($Z = 1.93$, $p = .053$), suggesting that friendship quality does not mediate the relationship between gratitude and life satisfaction.

Exploratory Analyses

Exploratory analyses were conducted to further analyze the mediation models. Of interest was determining which subscales on the MFQ-FF, if any, may represent pathways of influence when controlling for gender and personality. The bivariate correlations indicated that all six subscales of the MFQ-FF had significant positive correlations with the Gratitude and Interpersonal Appreciation subscales, ranging from .27 to .50. In the interpersonal appreciation

model, all six subscales of the MFQ-FF were analyzed as potential mediators between interpersonal appreciation and life satisfaction to determine which aspects of friendship quality may contribute to the significant mediation in the initial interpersonal model. In the interpersonal appreciation mediation model with the Self-validation subscale as the mediator (see Figure 5), interpersonal appreciation had a significant direct effect on life satisfaction ($\beta = .127$, $p < .05$) and on self-validation ($\beta = .176$, $p = .001$). When interpersonal appreciation and self-validation were entered into the regression model, self-validation had a significant effect on life satisfaction ($\beta = .194$, $p < .001$), and interpersonal appreciation had a non-significant effect on life satisfaction ($\beta = .092$, $p = .084$). The Sobel test yielded a statistically significant result ($Z = 2.46$, $p = .014$), suggesting that self-validation mediates the relationship between interpersonal appreciation and life satisfaction when gender and personality are controlled. None of the other five subscales of the MFQ-FF, Stimulating Companionship, Help, Intimacy, Reliable Alliance, and Emotional Security yielded significant effects.

Although the gratitude model resulted in a non-significant effect, exploratory analyses were still viewed as worthwhile to conduct to determine if there might be a subscale that appears more promising as a mediator than the overall friendship quality scale. In the gratitude mediation model, three subscales of the MFQ-FF were analyzed as potential mediators between gratitude and life satisfaction, including Help, Emotional Security, and Reliable Alliance due to prior research on the effects of gratitude. It was hypothesized that these three aspects of friendship quality would be most influenced by gratitude given that gratitude can result in people offering help or behaving in altruistic ways (Frederickson, 2004), can signal feelings of security in relationships (Gordon et. al, 2012), and may lead to increased engagement in relationship maintenance behaviors, (Gordon et al., 2012; Kubacka et al., 2011; Lambert & Fincham, 2011)

thereby potentially increasing the reliability and loyalty of a friend. All three mediators were non-significant.

Finally, the two primary mediation models were examined separately for men and women. This analysis was viewed as exploratory because there were no a priori hypotheses regarding gender differences and because the power was less, as the sample was split. Neither the gratitude nor the interpersonal appreciation models were significant either for men or for women.

Discussion

The purpose of the present study was to explore friendship in emerging adulthood by closely examining friendship quality as a potential mediating variable in two separate mediation models. Friendship quality was investigated to determine if it could help to explain the established links between gratitude and life satisfaction and between interpersonal appreciation and life satisfaction. Do gratitude and interpersonal appreciation affect life satisfaction because they influence friendship quality?

Bivariate Correlations

Correlational analyses replicated prior research (e.g., Adler & Fagley, 2005) that demonstrated that gratitude and interpersonal appreciation both have significant positive relationships with life satisfaction. Other studies have also demonstrated the positive relationship between gratitude and life satisfaction (e.g., Datu & Mateo, 2015; Kong et al., 2015; Peizhen & Feng, 2013); however, gratitude has often been measured using the GQ-6, a measure that encompasses additional aspects of appreciation. The present work used a more precise measure of gratitude than many earlier studies to determine its relationship with life satisfaction. Thus, the current findings indicate that the link between gratitude and life satisfaction may be

explained by gratitude alone rather than other components of appreciation. Consistent with the earlier research on the positive impact that gratitude and interpersonal appreciation can have on various forms of relationships (e.g., Algoe et al., 2008; Algoe et al., 2010; Gordon et al., 2012; Kubacka et al., 2011; Lambert & Fincham, 2011), the present study found that gratitude and interpersonal appreciation both had significant positive relationships with friendship quality. Such results expand on the existing research, as the exploration of gratitude and interpersonal appreciation has primarily focused on their influence in romantic relationships; also, some researchers have measured gratitude as a state, that is, momentary instances of gratitude (Algoe et al., 2010; Algoe et al., 2008), whereas the present work focused on examining gratitude as a trait (i.e., one's tendency to feel grateful). The study's findings indicate that trait gratitude and interpersonal appreciation may be predictors for friendship quality, particularly among emerging adults, which is consistent with the work by Lambert and Fincham (2011). A significant positive relationship was also shown between friendship quality and life satisfaction, a finding that parallels studies that have found that higher quality social support and friendships are associated with increased well-being and life satisfaction (Berg et al., 2006; Demir & Wetekamp, 2007; Pinquart & Sörensen, 2000; Raboteg-Saric, & Sakic, 2013).

Partial Correlations

Findings from the study supported hypothesis 1a and 1b, that both gratitude and interpersonal appreciation each have a significant positive association with friendship quality and H2a and H2b, that they each have a significant positive association with life satisfaction when gender and personality are controlled. The findings expand on the research by Wood, Joseph, and Maltby (2008), who found that gratitude had a positive relationship with life satisfaction after controlling for personality. Wood et al. (2008) used the GQ-6 measure to assess gratitude,

the Revised NEO Personality Inventory (NEO-PI-R) to measure the Big Five personality traits, and did not control for gender. In contrast, the present study indicates that a positive relationship exists between a narrow measure of gratitude and life satisfaction even after the important factors of gender and personality (measured via the BFI) are controlled. The current study extends the results of Adler and Fagley (2005) that demonstrated a positive relationship between interpersonal appreciation and life satisfaction, as the current study shows that the positive association between the variables was still observed after gender and the Big 5 personality traits were taken into account. Both aspects of appreciation and their relationship with life satisfaction may be indicative of how appreciating the benefits received from others and the friendships in our lives may, in fact, affect the degree to which we are satisfied with our lives regardless of gender and personality.

There are no known studies that have examined both trait gratitude and interpersonal appreciation and their relationships with friendship quality, and none that have examined these relationships while controlling for gender and personality. Thus, the findings from the current study indicating that both aspects of appreciation are positively associated with friendship quality even when gender and personality are controlled add to the literature and strengthen the argument that these two components of appreciation may, in fact, be influential in enhancing the quality of young adult friendships.

Findings from the present study also supported hypothesis 3, that is, that there is a significant positive relationship with friendship quality and life satisfaction even when gender and personality are taken into account. Such findings are important, as several of the limitations of the existing research that examined the association between these variables are addressed. Prior studies did not control for both gender and personality, measured subjective well-being

rather than life satisfaction alone, lacked diversity in the sample, and focused on adolescent friendships (Demir & Weitekamp, 2007; Raboteg-Saric & Sakic, 2013). The results from the present study add further evidence to the extant literature about the importance of social relationships during the emerging adult stage (Erik Erikson, 1963; Fraley & Davis, 1997; Swenson, Nordstrom, and Heister, 2008), particularly the value of high quality friendships being a significant predictor for life satisfaction alone (rather than subjective well-being as a whole) among a sample of emerging adults from culturally diverse backgrounds.

Tests of Mediation

The current findings supported one of the two primary hypotheses, hypothesis 4a. A key finding was that friendship quality significantly mediated the relationship between interpersonal appreciation and life satisfaction when gender and personality were controlled. Given that this was the first known study to yield results that are consistent with friendship quality serving as a mediator between interpersonal appreciation and life satisfaction and used a diverse sample, the findings offer a significant contribution to the limited research on interpersonal appreciation. The findings potentially provide further insight into understanding the link between these variables and suggests that interpersonal appreciation may have its effect on life satisfaction through its effect on developing quality friendships. This implies that when emerging adults acknowledge and value how their friends contribute to their own well-being, this may result in a positive impact on the quality of their friendships and consequently, may lead to a positive evaluation of how satisfied they are with their lives.

The results are in accordance with the various theories about gratitude and appreciation, including the *find, remind, and bind theory of gratitude*, which states that experiences of gratitude can remind people of the high quality persons in their lives and bring them closer

together (Algoe, 2012), along with the appreciation model proposed by Gordon et al. (2012), who asserted that both being appreciative and feeling appreciated can trigger feelings of security in a partnership and positive evaluations of the other, thus increasing the likelihood of engaging in relationship maintenance behaviors. Similarly, appreciating the ways in which a friend provides meaning to our lives or being the one to feel appreciated may help to remind us of the positive qualities of the friend, may promote positive feelings such as security in the friendship, and thereby increase the desire to behave in ways that help sustain and further develop the friendship. If at least one individual in a friendship engages in relationship maintenance behaviors, this may increase an ongoing cycle of prosocial behavior and appreciation in the friendship, continuing to further strengthen the bond over time. With increased friendship quality, emerging adults may be more likely to have increased life satisfaction due to the important role that social relationships play in their lives (Erik Erikson, 1963; Fraley & Davis, 1997; Swenson, Nordstrom, and Heister, 2008) and the positive impact that high quality friendships can have on well-being (Demir & Wetekamp, 2007; Gillespie, et al., 2015; Pinquart & Sörensen, 2000; Raboteg-Saric, & Sakic, 2013).

Although there were significant positive associations between each of the variables in the proposed mediation model involving gratitude, the Sobel test of mediation did not indicate that friendship quality could mediate the relationship between gratitude and life satisfaction. One reason for the non-significant outcome may be the possibility that gratitude scores were partially confounded with social desirability to a greater degree than the interpersonal appreciation scores. Gratitude may be a trait with which people are more familiar and for which there are shared societal norms, and thus, responses may have been more influenced by attempts to appear more grateful, as that is the social norm. Social desirability effects may have negatively skewed the

gratitude data, which in turn, may have reduced the size of the partial correlations involving the gratitude variable.

Exploratory Analyses

Exploratory analyses generated a notable finding from the interpersonal appreciation model: that the *self-validation* aspect of friendship quality significantly mediated the relationship between interpersonal appreciation and life satisfaction. Self-validation refers to reassuring a friend's self-worth by affirming that friend's positive qualities, including his/her abilities and traits. The items on the self-validation subscale include thinking about how one's friend does the following: "Makes me feel smart", "Makes me feel special", "Compliments me when I do something well", "Points out things that I am good at", and "Makes me feel that I can do things well" (Mendelson & Aboud, 2014, p. 18). Such a finding suggests that when emerging adults acknowledge and value how their friends positively affect their lives and well-being, this may lead to increased self-validation; which, in turn, may result in greater life satisfaction for emerging adults. This mediation model is also consistent with the frameworks proposed by Algoe (2012) and Gordon et al. (2012). Appreciating our friendships or feeling appreciated by our friends may signal positive appraisals and feelings toward our friends and friendship, and result in an increased likelihood to engage in behaviors that foster and strengthen the friendship, such as maintaining a friend's self-worth. It may first take interpersonal appreciation to increase one's likelihood of preserving a friend's self-image and confidence. In other words, it may be necessary to first acknowledge how a friend contributes to one's own well-being before being inclined to enhance a friend's well-being. Then, once a person engages in self-validation of a friend, this may increase the chances of the friend reciprocating this behavior; that is, there may be a notion that – "You make me feel good about myself, so I'm going to do the same for you."

In order to receive self-validation from a friend, one may have to provide it first, and interpersonal appreciation may help to initiate the cycle. Another possible explanation for the relationships in the mediation model may be that a friend who is feeling appreciated may initiate the act of self-validation due to his/her own positive feelings being triggered, such as feeling valued in the friendship. The act of being acknowledged for the kind of friend one is may increase the likelihood of wanting to continue to engage in future friendship maintenance behaviors, such as reassuring his/her friend's self-worth. Engaging in self-validation may be a way to return the feelings of being valued that were generated from interpersonal appreciation. One reason self-validation may have been the only subscale showing significant mediation in either of the models may be due to its relationship with life satisfaction ($\beta = .194, p < .001$) and connection to self-esteem. The self-validation component of friendship quality may help to foster a friend's self-esteem due to the emphasis on promoting a friend's strengths, and the higher self-esteem developed may result in increased life satisfaction. Research shows a relationship exists between self-esteem and life satisfaction among emerging adults across cultures (e.g. Diener & Diener, 1995), and has found self-esteem to be a mediating variable between social support and well-being among adolescents (e.g., Kong & You, 2013; Yarcheski, Mahon, & Yarcheski, 2001) and emerging adults (e.g., Kong, Zhao, & You, 2013). The present work adds greater insight into understanding how a specific component of friendship quality may serve as a mechanism between interpersonal appreciation and life satisfaction.

Although research has indicated that there are gender differences in gratitude, life satisfaction, and friendship quality and the current study found gender differences in gratitude, interpersonal appreciation, and friendship quality, the analyses examining the two primary mediation models separately for men and women yielded no significant mediation. One reason

for this outcome may be that the sample sizes in the mediation analyses were too small to yield significant results.

Limitations and Future Directions

Several limitations of the current study should be noted. Although the instruments used to measure the constructs examined in this study demonstrated evidence of good reliability and validity and participants' responses remained anonymous, the study relied on self-report measures and thus, may have included reporter bias and social desirability effects. This threat to internal validity may be reduced in future research by using additional forms of evaluation, such as peer reports. Another limitation is that the study involved the use of non-experimental, cross-sectional data; therefore, relationships between variables cannot be deemed causal. However, findings should be viewed as a meaningful first step in examining mediation among the variables of interest, as there has been no research to date examining the proposed mediation models. Given that the current study relied on measures taken at only one time-point, causal direction cannot be inferred. A longitudinal study may be the next step in further assessing friendship quality and self-validation as mediators between interpersonal appreciation and life satisfaction, as that would allow alternative causal orderings to be ruled out. Additionally, there continues to be limited research on interpersonal appreciation as a whole, especially in the context of friendships, thus it would be worthwhile for future research to conduct experimental studies involving interpersonal appreciation-based interventions targeting friendship (i.e. Lambert & Fincham, 2011) and their effects on the various aspects of friendship, such as self-validation, and on well-being among emerging adults. Perhaps conducting an observational study similar to the one reported by Gordon et. al (2012) may be meaningful; however, rather than assessing the association between appreciation and observation of relationship maintenance behaviors among

romantic couples in a laboratory setting, it may be useful to mirror this study but with friend dyads. A third limitation of the present work is that the findings may not be generalizable to other age groups, as the sample only included those in the emerging adult population, consisting of individuals between the ages of 18 to 25. Thus, a recommendation for additional research could be to examine the present study's variables with different age groups to understand the constructs among other populations and to compare with the current results. Also, an area for subsequent research may be to replicate the study's mediation models separately by gender but with an increased sample size for both men and women to yield enough power to detect potential gender differences among the variables of interest. Such follow-up may be worthwhile to pursue, as research has shown gender differences in the areas of gratitude, life satisfaction, and friendship quality. Furthermore, given that the gratitude subscale included a limited number of items targeting gratitude in friendship, it may be important for future studies to consider developing a revised gratitude subscale that includes additional items involving gratitude in friendships to more accurately assess friendship quality as a mediator between gratitude and life satisfaction.

Lastly, the results from the study may have implications for clinical practice. Specifically, the findings may be generalizable to a variety of cultural groups among the emerging adult population given the diversity of the sample used. The findings may be particularly useful for psychologists and clinicians working in college counseling centers or with young adult clients in other mental-health-based settings. Clinicians could utilize the findings from the interpersonal appreciation models to develop individual or group-based interventions along with mental-health outreach programs that target interpersonal appreciation in friendship. Such interventions and programming that utilize a positive psychology framework may be

valuable for emerging adults and may help some establish a greater propensity toward interpersonal appreciation in their social relationships over time. Given that emerging adulthood is a developmental period that is prone to a variety of psycho-social stressors, clinical interventions and programming encompassing interpersonal appreciation may be notable in mitigating such stressors due to the possibility of strengthened friendships and increased life satisfaction during this challenging developmental period in the life span. Thus, appreciation within our interpersonal connections may be extremely valuable not only for romantic relationships but for friendships too.

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Table 1

Descriptive Statistics (N = 357)

	Mean	SD	Coefficient Alpha	Min	Max
Gratitude	6.31	.65	.77	3.10	7.00
Interpersonal Appreciation	5.30	1.06	.83	1.20	7.00
MFQ-FF	40.27	6.34	.97	20.80	48.00
Stimulating Companionship	6.93	1.12	.88	2.20	8.00
Help	6.47	1.26	.87	1.40	8.00
Intimacy	6.70	1.32	.88	.40	8.00
Reliable Alliance	7.17	1.09	.92	1.80	8.00
Self-Validation	6.39	1.33	.87	2.20	8.00
Emotional Security	6.62	1.28	.87	1.40	8.00
Life Satisfaction	22.84	6.57	.86	5.00	35.00
Big 5					
Openness	3.60	.54	.71	1.60	5.00
Conscientiousness	3.42	.63	.77	1.44	5.00
Extraversion	3.21	.80	.84	1.00	5.00
Agreeableness	3.78	.67	.80	1.56	5.00
Neuroticism	3.23	.78	.81	1.13	5.00

Table 2

Correlations (N = 357)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Gender ^a		.26***	.14**	.31***	.23***	.27***	.31***	.22***	.28***	.25***	.04	.10	.07	.14**	.03	.16**
2. Gratitude			.36***	.47***	.38***	.37***	.38***	.50***	.35***	.44***	.25***	.23***	.25***	.15**	.37***	-.03
3. Int. Appreciation				.37***	.30***	.33***	.30***	.27***	.32***	.36***	.25***	.27***	.16**	.30***	.41***	-.04
4. MFQ-FF					.84***	.86***	.86***	.82***	.86***	.91***	.26***	.19***	.20***	.22***	.36***	-.04
5. SC						.71***	.59***	.65***	.65***	.72***	.18**	.17**	.15**	.14**	.31***	-.05
6. Help							.64***	.65***	.69***	.75***	.23***	.15**	.16**	.21***	.31***	-.04
7. INT								.71***	.69***	.74***	.20***	.10	.11*	.24***	.27***	-.01
8. RA									.58***	.67***	.14**	.13*	.15**	.16**	.31***	-.03
9. SV										.75***	.31***	.21***	.25***	.18**	.31***	-.05
10. ES											.23***	.19***	.19***	.18**	.35***	-.01
11. Life Satisfaction												.16**	.36***	.30***	.32***	-.37***
12. O													.25***	.23***	.25***	-.07
13. C														.19***	.39***	-.36***
14. E															.19***	-.25***
15. A																-.29***
16. N																

Note. Int. Appreciation = Interpersonal Appreciation. MFQ-FF = McGill Friendship Questionnaire - Friend's Function.

SC = Stimulating Companionship. INT = Intimacy. RA = Reliable Alliance. SV = Self-Validation. ES = Emotional Security. O = Openness. C = Conscientiousness.

E = Extraversion. N = Neuroticism.

^a Gender was coded as Male = 1, Female = 2.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Partial correlations when controlling for gender and personality (N = 357)

Variable	1	2	3	4
1. Gratitude	--	.20***	.32***	.13*
2. Int. Appreciation	--	--	.19***	.13*
3. MFQ-FF	--	--	--	.14**
4. Life Satisfaction	--	--	--	--

Note. Int. Appreciation = Interpersonal Appreciation.

MFQ-FF = McGill Friendship Questionnaire - Friend's Function.

* $p < .05$. ** $p < .01$. *** $p < .001$.

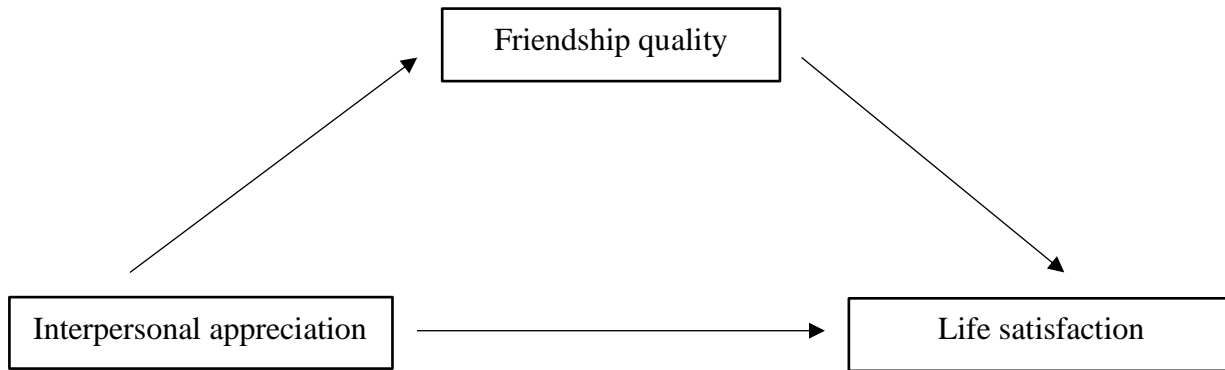


Figure 1. Proposed Mediation Model: Friendship Quality as a Mediator Between Interpersonal Appreciation and Life Satisfaction

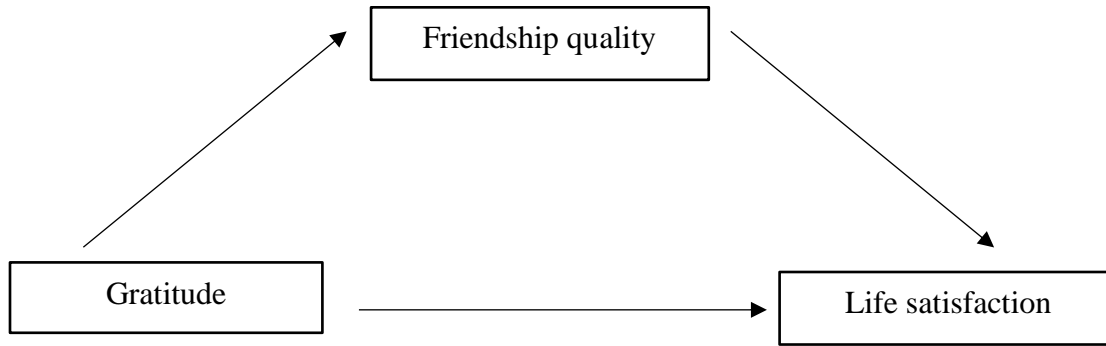


Figure 2. Proposed Mediation Model: Friendship Quality as a Mediator Between Gratitude and Life Satisfaction

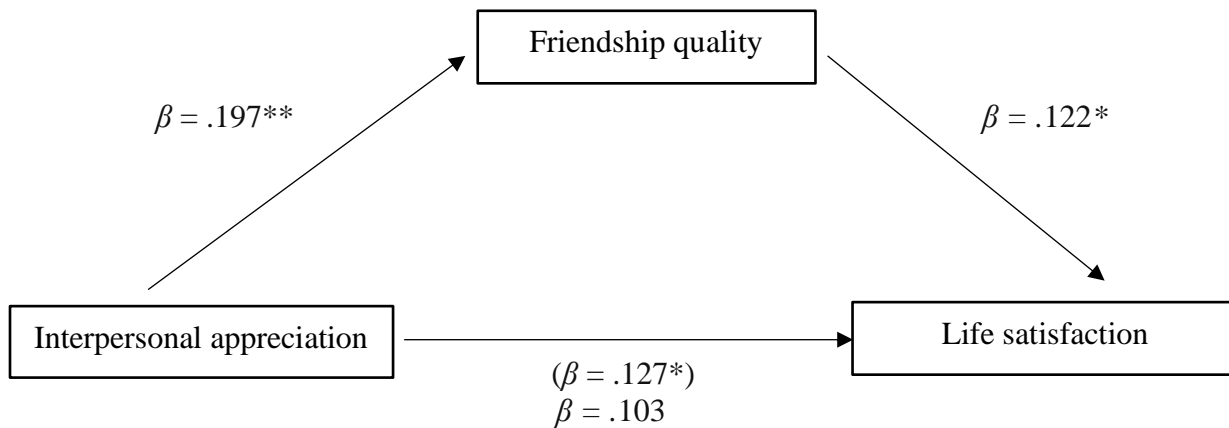


Figure 3. Mediation model: Friendship quality mediates the relationship between interpersonal appreciation and life satisfaction when gender and personality are controlled. Standardized coefficients are provided for each path. Note: $*p < .05$. $**p < .001$. The value in parentheses indicates the coefficient for the pathway between interpersonal appreciation and life satisfaction when the mediator is not part of the model. The Sobel Test Z statistic = 1.96, $p = .050$.

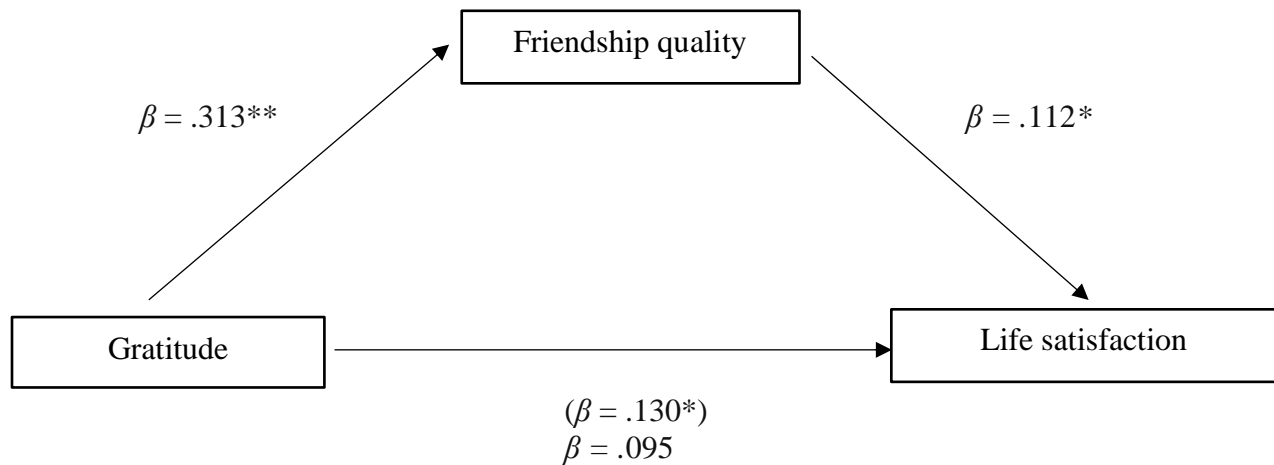


Figure 4. Mediation model: Friendship quality does not mediate the relationship between gratitude and life satisfaction when gender and personality are controlled. Standardized coefficients are provided for each path. Note: $*p < .05$. $**p < .001$. The value in parentheses indicates the coefficient for the pathway between gratitude and life satisfaction when the mediator is not part of the model. The Sobel Test Z statistic = 1.93, $p = .053$.

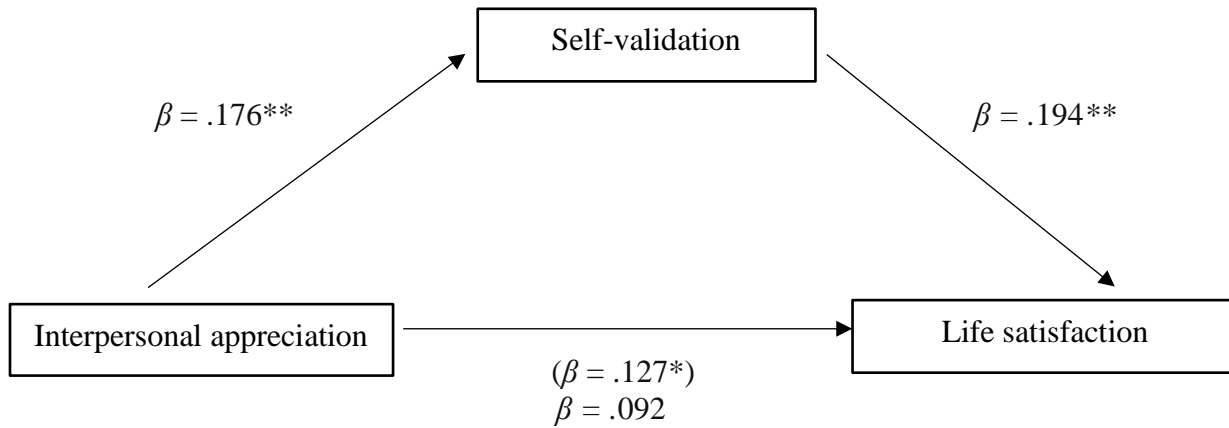


Figure 5. Mediation model: Self-validation mediates the relationship between interpersonal appreciation and life satisfaction when gender and personality are controlled. Standardized coefficients are provided for each path. Note: $*p < .05$. $**p \leq .001$. The value in parenthesis indicates the coefficient for the pathway between interpersonal appreciation and life satisfaction when the mediator is not part of the model. The Sobel Test Z statistic = 2.46, $p = .014$.