



Identity and perceived peer relationship quality in emerging adulthood: The mediating role of attachment-related emotions

Sarah Doumen*, Ilse Smits, Koen Luyckx, Bart Duriez, Janne Vanhalst, Karine Verschueren, Luc Goossens

Department of Psychology, Katholieke Universiteit Leuven, Belgium

A B S T R A C T

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Identity formation and the perceived quality of one's peer relationships are theorized to be intimately linked in emerging adulthood. The present study examined the associations between identity styles (i.e., information-oriented, normative, and diffuse-avoidant styles) and the quality of relationships with peers (as indexed by friendship quality and loneliness) in a sample of 343 college students from Belgium. High scores for the information-oriented style were positively related to friendship quality, whereas high scores for the diffuse-avoidant identity style were positively related to loneliness. These direct associations were mediated, at least in part, by attachment-related emotions (i.e., avoidance and anxiety). These associations, both direct and indirect, provide the first evidence linking identity styles and the quality of peer relationships. Suggestions for future research are provided, both at the methodological and the conceptual level.

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Emerging adulthood is a period of profound developmental changes (Arnett, 2004). Young people in this phase of life need to establish a personalized identity that allows them to tackle the challenges they are facing on the road to adulthood (Erikson, 1968). Many emerging adults also leave the parental home to attend college. Typically, this transition causes them to turn increasingly to peers as attachment figures. When doing so, they can meet their attachment needs while simultaneously establishing autonomy in the relationship with parents (Shaver, Furman, & Buhrmester, 1985).

According to Erikson (1968), identity formation and the redefinition of the social world are intertwined. College students who approach the identity task in a more sophisticated way can be expected to experience greater peer relationship quality. At the same time, identity formation is shaped in the context of close peer relationships (Kerpelman & Pittman, 2001). Hence, in line with transactional models of development, personal identity formation and the peer context most likely affect each other in mutual fashion (Bosma & Kunnen, 2001; Grotevant, 1987). In the current cross-sectional study, we focus on one such pathway and explore how identity styles may impact upon peer relationship quality. No empirical studies on this particular topic have been conducted to date (Berzonsky, 2011). The present study tries to fill this gap in the literature (a) by examining associations between identity styles and perceived peer relationship quality in college students and (b) by examining the mediating role of basic emotional reactions in these associations.

* Corresponding author. K.U. Leuven, Department of Psychology, Tiensestraat 102, Box 3717, 3000 Leuven, Belgium. Tel.: +32 16325847.
E-mail address: sarah.doumen@ppw.kuleuven.be (S. Doumen).

Identity styles and peer relationship quality

In the present study, identity is conceptualized in terms of socio-cognitive identity styles (Berzonsky, 1989, 1990, 2011). An identity style refers to the strategy an individual uses to process, structure, utilize, and revise self-relevant information. Three different identity styles are distinguished: An information-oriented, a normative, and a diffuse-avoidant style. Individuals scoring high on the information-oriented style actively seek out and process identity-relevant information to make well-informed choices. These choices, in turn, result in a well-differentiated and well-integrated identity structure. Individuals scoring high on the normative style focus on the expectations and prescriptions held by significant others. This approach results in an identity structure characterized by conservative and inflexible attitudes (Duriez, Luyckx, Soenens, & Berzonsky, 2012). The primary goal of normatively oriented individuals is to conserve and maintain self-theories and to guard against information that may threaten their values and beliefs. Finally, individuals scoring high on the diffuse-avoidant style procrastinate identity-related decisions until situational demands force a choice onto them. Such an approach results in a fragmented and loosely integrated identity structure.

In most empirical studies, continuous measures of the degree to which adolescents apply each of these three identity styles are used. Studies on associations between identity styles and the perceived quality of peer relationships are virtually non-existent. Earlier research among college students, however, did document associations with interpersonal behaviors that are linked with relationship quality. Higher scores for the information-oriented style were correlated with higher scores for prosocial behavior and lower scores for physical and relational aggression. Conversely, higher scores for the diffuse-avoidant style were correlated with lower levels of prosocial behavior and higher physical and relational aggression scores. Finally, higher scores for the normative style were related to higher levels of relational aggression (Smits, Doumen, Luyckx, Duriez, & Goossens, 2011). Additional research indicated that higher scores for the information-oriented style were associated with a greater tendency for social support seeking (Nurmi, Berzonsky, Tammi, & Kinney, 1997).

At a more general level, emerging adults with higher scores for the information-oriented style describe themselves as being tolerant and accepting of others. They establish and maintain positive, supportive, and mature interpersonal relationships and relate to people with different backgrounds and opinions (Berzonsky & Kuk, 2005). College students with high diffuse-avoidant style scores, in contrast, describe themselves as lower in intimacy, openness, trust, and tolerance. They have greater difficulties in forming friendships and maintaining a supportive social network (Vleioras & Bosma, 2005). Based on these indications, emerging adults with higher information-oriented style scores may be expected to report a higher perceived quality of peer relationships, whereas their age mates with higher diffuse-avoidant style scores can be expected to report lower-quality peer relationships. For emerging adults with high normative identity style scores, predictions are less clear. At the theoretical level, adolescents who use a normative style focus on the normative expectations of significant others, thereby assigning high importance to reference groups and socially accepted behavior. Hence, one could expect that peer group integration is an important asset for individuals scoring high on the normative style. However, the closed-minded and defensive nature of these individuals might prevent them from investing in close peer relationships in a genuine and unbiased way (Soenens, Duriez, & Goossens, 2005).

Attachment-related emotions and peer relationships

Associations between identity and peer relationship quality may be explained, at least in part, through basic emotional reactions that underlie the perceived quality of relationships. Attachment theory provides a coherent framework of such emotional reactions. Attachment may be defined as the tendency to establish close relationships with significant others (Ainsworth, 1989). According to attachment theory, two basic emotional reactions or orientations to attachment may be distinguished. The first refers to *anxiety* about abandonment or insufficient love and the second refers to *avoidance* of intimacy, interdependence, and emotional openness (Brennan, Clark, & Shaver, 1998). Whereas insecure attachment can take on two different forms within this framework (i.e., attachment anxiety or attachment avoidance), secure attachment is defined as low levels of both attachment anxiety and attachment avoidance (Feeney, 2008; Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010). Attachment anxiety and attachment avoidance are frequently measured by means of self-report measures such as the Emotional Experiences in Close Relationships inventory (ECR; Wei, Russell, Mallinckrodt, & Vogel, 2007). Although, typically, the ECR is used to assess attachment anxiety and attachment avoidance in romantic relationships (Crowell, Fraley, & Shaver, 2008), the instrument has also been adapted to assess these basic emotional reactions in peer relationships in general.

When examining associations between attachment-related emotions and the perceived quality of peer relationships, it is important to distinguish between two types of peer relationships. At the dyadic level, college students have relationships with friends that constitute voluntary, intimate, and dynamic relationships between two individuals based on cooperation and trust. At the group-level, college students interact with a whole network of age mates (Gifford-Smith & Brownell, 2003). In the present study, peer relationship quality indicators are considered both at the dyadic level (i.e., friendship quality) and at the group-level (i.e., loneliness). Friendship quality is typically assessed with regard to one's best friend, and is a multidimensional construct that refers to the provisions that this friendship affords. These provisions are the degree of companionship, help, security, and closeness, and the lack of conflict in this relationship (Bukowski, Hoza, & Boivin, 1994). Dissatisfaction with one's social network as a whole is typically captured through measures of loneliness. Loneliness refers to feelings of perceived social isolation, which are associated with perceived qualitative or quantitative deficiencies in one's interpersonal network (Perlman & Peplau, 1981).

In earlier research, attachment in romantic relationships was associated with friendship quality. College students who were securely attached to their romantic partner showed higher levels of helping behavior and lower levels of conflict in their relationship with their best friend. In contrast, students who showed avoidant attachment to their romantic partner had lower companionship levels and higher conflict levels in their relationship with their best friend (Saferstein, Neimeyer, & Hagans, 2005). Significant links between attachment to one's romantic partner and loneliness were also observed. Higher scores on both attachment anxiety and attachment avoidance in romantic relationships were related to greater loneliness (Fairchild & Finney, 2006). In short, both attachment anxiety and attachment avoidance may predict perceived peer relationship quality in college students, as indicated by friendship quality and loneliness.

Toward a mediational model

In the current study, we adopted a continuous approach to the measurement of both attachment and identity styles and hypothesized that identity styles would be associated with attachment anxiety and attachment avoidance. We further examined whether associations with attachment anxiety and attachment avoidance mediate the association between identity styles and perceived peer relationship quality. As mentioned, research on this topic is non-existent, but previous research focusing on parental and peer attachment and identity formation more broadly already provides some insight into the specific associations forwarded in the present study. Research among college students found links between their overall approach to identity formation and secure versus insecure attachment styles in the relationship with their parents. More sophisticated approaches to identity development (i.e., higher scores on identity exploration and commitment) were associated with a secure attachment style, whereas less sophisticated approaches to identity development (i.e., lower scores on exploration or commitment) were related to insecure attachment styles (Kennedy, 1999; Zimmermann & Becker-Stoll, 2002). Research focusing simultaneously on indices of parental and peer attachment substantiated that especially peer attachment security was positively related to identity exploration and commitment in adolescents (Meeus, Iedema, Maassen, & Engels, 2002).

Although this previous research was mainly conceptualized in terms of peer attachment serving as a prerequisite for identity, transactional models of development also emphasize the important influence identity development can have on socio-contextual variables (Bosma & Kunnen, 2001). For instance, with respect to parent–adolescent relationships, Luyckx, Soenens, Vansteenkiste, Goossens, and Berzonsky (2007) found, as commonly presumed in the identity literature, that relationships with parents had an over-time influence on identity formation, but they also found that identity exploration had an influence on relationships with parents over-time.

As noted, identity as conceptualized in the present study focuses on stylistic approaches toward the task of identity exploration. These identity styles are expected to affect the way individuals deal with and behave in interpersonal relationships, because they represent different strategies to process information from the social reality in which individuals reside (Berzonsky, 2011). This expectation naturally leads to a detailed inquiry into how identity styles and attachment-related emotions such as anxiety and avoidance interrelate on the pathway to peer relationship quality. Based on our earlier description of identity styles in terms of interpersonal behaviors and attitudes, we can expect the information-oriented style to relate negatively to attachment anxiety and attachment avoidance. Put differently, individuals scoring high on this open-minded and mature identity style display a secure attachment toward their close peers. Individuals scoring high on the diffuse-avoidant identity style, in contrast, can be expected to score high on attachment anxiety and attachment avoidance, being indicative of their profound difficulties in establishing mature peer relations. Again, no clear predictions can be made for emerging adults with high scores for the normative identity style.

The present study

The present study examined attachment-related emotions as a mediating variable in the associations between identity styles and perceived peer relationship quality among college students. First, we expected the information-oriented style to relate positively to friendship quality and negatively to loneliness. We further expected that the links with attachment anxiety and attachment avoidance could, at least in part, explain these associations. Second, we expected the diffuse-avoidant style to relate negatively to friendship quality and positively to loneliness, again expecting that attachment anxiety and attachment avoidance would at least in part explain these associations. Finally, no clear expectations could be formulated regarding the normative identity style. Therefore, analyses concerning the relations between this identity style, attachment-related emotions, and perceived peer relationship quality were largely exploratory in nature.

Mean-level gender differences were expected for various study variables. Females show a more sophisticated approach to identity formation. Male college students score higher on the diffuse-avoidant style and female college students score higher on the information-oriented identity style (Berzonsky, 2011). From adolescence onwards, females tend to rate their friendships more positively, due to the greater importance they place on their friendships (e.g., Bowker & Rubin, 2009). Finally, males show higher levels of attachment avoidance, which can be seen as a male-biased strategy promoting reduced commitment and parental investment (Del Giudice, 2011). As these gender differences have a clear theoretical or empirical basis, we examined mean-level gender differences and included gender in our mediational model.

Method

Participants and procedure

The sample consisted of 343 undergraduate psychology students from a large university in the Dutch-speaking part of Belgium (mean age = 18 years; $SD = 1.62$; 80% female) who received course credit for their participation. Of these participants, 77% came from intact families, 19% had divorced parents, and 4% had a deceased parent. Almost all participants (96%) had the Belgian nationality. In accordance with the rules of the Internal Review Board of the university where this study was conducted, active informed consent was obtained from all students. Participants completed the measures in group sessions that took no longer than 50 min.

Measures

Identity styles

Participants completed Version 4 of the Identity Style Inventory (ISI-4; Luyckx, Lens, Smits, & Goossens, 2010; Smits et al., 2009). Items were scored on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alphas for the information-oriented (7 items, e.g., "When facing a life decision, I try to analyze the situation in order to understand it"), the normative (8 items, e.g., "I strive to achieve the goals that my family and friends hold for me"), and the diffuse-avoidant (7 items, e.g., "Many times, by not concerning myself with personal problems, they work themselves out") scale were .79, .67, and .77, respectively. Table 1 shows the correlations between these scales. The information-oriented style was not significantly related to the normative style ($r = .00$, $p = .97$) and was significantly negatively related to the diffuse-avoidant style ($r = -.33$, $p < .001$). The normative and the diffuse-avoidant style were significantly positively related ($r = .19$, $p < .01$).

Attachment-related emotions

Attachment anxiety and attachment avoidance were measured with the Experiences in Close Relationship Scale – Short Form (ECR; Wei et al., 2007). Items were scored on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants completed the questionnaire with their best friend in mind. As the original ECR focuses on romantic partners, the wording of the items was altered to apply to friends. The attachment anxiety (6 items, e.g., "I need a lot of reassurance that I am loved by my friend") and attachment avoidance (6 items, e.g., "I want to get close to my friend, but I keep pulling back") scales had a Cronbach's alpha of .62 and .76, respectively, and were positively related ($r = .22$, $p < .001$; see Table 1).

Peer relationship quality

Participants completed the 23-item Friendship Qualities Scale regarding the relationship with their best friend (FQS; Bukowski et al., 1994; e.g., "My friend would help me if I needed it") and the 9-item state subscale of the State-Trait Loneliness Scales (STLS; Gerson & Perlman, 1979; e.g., "During the past days, nobody really knew me"). Items were scored on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The Friendship Qualities Scale consists of the subscales Companionship, Conflict, Help/Aid, Security, and Closeness. However, because the Cronbach's alpha for a number of these subscales was suboptimal, we proceeded with the scale in its entirety. Cronbach's alpha for the FQS was .83, for the STLS .82. The two scales were significantly negatively related ($r = -.30$, $p < .001$; see Table 1).

Results

Preliminary analyses

Correlations among all study variables can be found in Table 1. As expected, the information-oriented style was positively related to friendship quality and negatively to loneliness, and the reverse pattern was found for the diffuse-avoidant style. The normative style did not relate to either friendship quality or loneliness. The information-oriented style related negatively to attachment avoidance, but no relation with attachment anxiety was found. The normative style was positively related to

Table 1
Correlations among all study variables ($N = 343$).

| Scale | 1. | 2. | 3. | 4. | 5. | 6. |
|-------------------------------|---------|--------|---------|---------|---------|---------|
| 1. Information-oriented style | | | | | | |
| 2. Normative style | .00 | | | | | |
| 3. Diffuse-avoidant style | -.33*** | .19** | | | | |
| 4. Anxious attachment | -.06 | .21*** | .16** | | | |
| 5. Avoidant attachment | -.28*** | .08 | .31*** | .22*** | | |
| 6. Friendship quality | .38*** | -.01 | -.22*** | -.22*** | -.64*** | |
| 7. Loneliness | -.13* | .03 | .16** | .29*** | .36*** | -.30*** |

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

attachment anxiety, but no relation with attachment avoidance was found. As expected, the diffuse-avoidant style was positively related to attachment anxiety and attachment avoidance. Finally, both attachment anxiety and avoidance were negatively related to friendship quality and positively to loneliness.

A MANOVA for gender on all the study variables yielded a significant effect ($F(7, 335) = 5.03, p < .001, \eta^2 = .10$). Follow-up ANOVAs, as summarized in Table 2, revealed significant gender differences for the information-oriented style, the diffuse-avoidant style, attachment avoidance, and friendship quality. In line with our expectations, women reported higher scores on the information-oriented style and on friendship quality, whereas men reported higher scores on the diffuse-avoidant style and on attachment-related avoidance.

Primary analyses

Mplus Version 4.0 (Muthén & Muthén, 2006) was used to examine whether the pathways from the identity styles to intimacy were mediated by the attachment dimensions. The models were evaluated by means of several fit indices (Kline, 2005): The Satorra–Bentler scaled chi-square statistic ($SBS-\chi^2$; Satorra & Bentler, 1994), which should be as small as possible and preferably non-significant, the Comparative Fit Index (CFI; Bentler, 1990), which should exceed .90, the Standardized Root Mean Square Residual (SRMR), which should be less than .10, and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), which should be less than .08. Regarding the RMSEA, the 90% Confidence Interval (CI) is reported. An RMSEA value less than or equal to .05 is indicative of close fit, a value between .05 and .08 indicates reasonable fit. The p -value of the probability that $RMSEA \leq .05$ is also provided, which should be preferably non-significant.

In order to test for mediation, following Holmbeck (1997), three models were compared: A direct effects model including the identity styles as predictors of intimacy (Model A), a full mediation model in which the identity styles and intimacy are indirectly related through attachment (Model B), and a partial mediation model including direct and indirect paths (Model C). According to Holmbeck (1997), two types of intervening effects can be distinguished, that is, mediated effects and indirect effects. Mediation is evident when there is an initial significant relation between the independent and dependent variable that is totally (in the case of full mediation) or substantially (in the case of partial mediation) reduced after taking the intervening variable into account. An indirect effect is evident when there is no initial relation but when the independent variable has an effect on the dependent variable through the intervening variable. The statistical significance of intervening effects can be evaluated by means of bootstrapping (Preacher & Hayes, 2008).

First, the direct effects model (Model A) was tested. This model was saturated, and, hence, provided a perfect fit to the data. Out of the six direct paths, four turned out non-significant and were trimmed (i.e., from the information-oriented style to loneliness, from the normative style to friendship quality, from the normative style to loneliness, and from the diffuse-avoidant style to friendship quality). Because the normative style was not uniquely related to either friendship quality or loneliness and we did not have clear expectations regarding its association with attachment-related emotions, this identity style was removed entirely from the model. The trimmed model fitted the data well [$SBS-\chi^2(2) = 4.51, p = .11$; $RMSEA = .06$, 90% CI [.00,.14], $p = .31$; $CFI = .98$; $SRMR = .03$] and the remaining direct paths were significant. More specifically, the information-oriented style had a positive effect on friendship quality ($\beta = .33, p < .001$) and the diffuse-avoidant style had a positive effect on loneliness ($\beta = .14, p < .05$). Second, attachment anxiety and avoidance were included as mediators in a full mediation model [Model B; $SBS-\chi^2(4) = 24.00, p < .001$; $RMSEA = .12$, 90% CI [.08,.17], $p < .01$; $CFI = .95$; $SRMR = .03$]. The non-significant path from the information-oriented style to attachment anxiety was trimmed from the model, resulting in a more parsimonious model [Bentler & Mooijaart, 1989; $SBS-\chi^2(5) = 24.24, p < .001$; $RMSEA = .11$, 90% CI [.07,.15], $p < .05$; $CFI = .95$; $SRMR = .03$]. The $SBS-\chi^2$ difference test yielded no significant difference between the original and the trimmed model [$\Delta SBS-\chi^2(1) = .23, ns$]. Finally, a partial mediation model (Model C) was tested in which the significant direct paths from Model A (e.g., from the information-oriented style to friendship quality and from the diffuse-avoidant style to loneliness) were included in the trimmed Model B. This model fitted the data well [$SBS-\chi^2(3) = 2.05, p = .56$; $RMSEA = .00$, 90% CI [.00–.08], $p = .81$; $CFI = 1.00$; $SRMR = .01$]. The $SBS-\chi^2$ difference test revealed that adding these paths substantially improved model fit [$SBS-\chi^2(2) = 18.95, p < .001$]. The non-significant direct path from the diffuse-avoidant style to loneliness was trimmed, leading to a more parsimonious model [$SBS-\chi^2(4) = 2.58, p = .63$; $RMSEA = .00$, 90% CI [.00,.07], $p = .88$; $CFI = 1.00$; $SRMR = .01$] that fitted the data equally well [$SBS-\chi^2(1) = .47, ns$].

Table 2
Descriptive statistics for the full sample and separately by gender.

| Scale | Full sample | | | Males | | Females | | Gender difference | |
|----------------------------|-------------|-------------------|----------------|------------|------------|-----------|----------|-------------------|--|
| | Mean (SD) | Theoretical range | Observed range | Mean (SD) | Mean (SD) | F(1, 341) | η^2 | | |
| Information-oriented style | 4.04 (.51) | 1.0–5.0 | 2.29–5.0 | 3.93 (.46) | 4.07 (.53) | 4.01* | .01 | | |
| Normative style | 2.58 (.50) | 1.0–5.0 | 1.25–4.0 | 2.53 (.56) | 2.59 (.48) | 1.01 | .00 | | |
| Diffuse-avoidant style | 2.55 (.60) | 1.0–5.0 | 1.00–4.33 | 2.73 (.67) | 2.50 (.57) | 7.75** | .02 | | |
| Attachment anxiety | 3.42 (.86) | 1.0–7.0 | 1.40–5.83 | 3.40 (.88) | 3.42 (.86) | .05 | .00 | | |
| Attachment avoidance | 2.60 (.80) | 1.0–7.0 | 1.40–6.07 | 2.94 (.87) | 2.51 (.75) | 16.51*** | .05 | | |
| Friendship quality | 4.15 (.37) | 1.0–5.0 | 3.0–4.91 | 3.95 (.40) | 4.20 (.34) | 26.61*** | .07 | | |
| Loneliness | 1.97 (.60) | 1.0–5.0 | 1.0–4.0 | 2.05 (.55) | 1.95 (.62) | 1.49 | .00 | | |

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

In this final model, attachment avoidance and attachment anxiety fully mediated the relation between the diffuse-avoidant style and loneliness. The initial direct path from the diffuse-avoidant style to loneliness ($\beta = .14$, $p < .05$) became non-significant after attachment avoidance (point estimate = .07, S.E. = .02, bias-corrected 95% CI [.03,.11]) and attachment anxiety (point estimate = .04, S.E. = .02, bias-corrected 95% CI [.01,.07]) were taken into account. In addition, the effect of the information-oriented style on friendship quality was partially mediated by attachment avoidance. The initial direct path from the information-oriented style to friendship quality was reduced from .33 to .20 and the mediation effect of the information-oriented style on friendship quality through attachment avoidance was significant (point estimate = .10, S.E. = .03, bias-corrected 95% CI [.05,.16]). Finally, there were indirect effects through attachment avoidance from the information-oriented style on loneliness (point estimate = -.06, S.E. = .02, bias-corrected 95% CI [-.10,-.02]) and from the diffuse-avoidant style on friendship quality (point estimate = -.12, S.E. = .03, bias-corrected 95% CI [-.18,-.06]). The indirect effect of diffuse-avoidant style on friendship quality through attachment anxiety was marginally non-significant (point estimate = -.02, S.E. = .01, bias-corrected 95% CI [-.03,.00]). The final model is shown in Fig. 1.

Because the reverse direction of effect has also been proposed (i.e., attachment style as a precursor of identity; Pittman, Keiley, Kerpelman, & Vaughn, 2011), the specified model was compared to this alternative model. In order to be able to compare these models, we removed all direct paths and allowed only indirect relationships through the intervening variables. This approach was necessary because retaining all of the paths in the model (and simply reversing the direction of some paths) would automatically produce identical fit (Keith, 2006). Moreover, because our primary hypotheses concerned a full mediation model, removing all direct paths seemed warranted. To compare these non-nested models, the Bayesian Information Criterion (BIC) was used. According to Raftery (1995), a difference of 10 points or more is strong, favoring the model with the lowest BIC value. The specified model, including only significant indirect paths, provided a better fit to the data than the alternative full mediational model (i.e., attachment-related emotions \rightarrow identity styles \rightarrow peer relationship quality; Δ BIC = 152.82). Although this finding does not exclude the possibility of bi-directional relationships between identity styles and attachment-related emotions, it does suggest that it is more plausible to consider attachment-related emotions as an intervening mechanism in the relationship between identity styles and peer relationship quality than it is to consider identity styles as an intervening mechanism between attachment-related emotions and peer relationship quality.

Discussion

The present study is the first attempt to simultaneously examine the associations among identity styles, attachment-related emotions, and peer relationship quality during emerging adulthood. Theoretically, one's identity and the quality of one's relationships with peers are closely related and both identity formation and the re-organization of the social network achieve great importance during emerging adulthood (Arnett, 2004; Erikson, 1968). For two out of the three identity styles (i.e. the information-oriented and the diffuse-avoidant identity style), a specific pattern of associations with attachment-related emotions and peer relationship quality was found.

As expected, the information-oriented subscale related positively to friendship quality, and this relationship was partially mediated by attachment avoidance. College students with high scores for the information-oriented style are more likely to be securely attached to their friends, as indexed by a negative relation with attachment avoidance. Securely attached individuals can allow themselves to feel more comfortable with closeness and interdependence, to seek support in times of stress (Mikulincer, Shaver, & Pereg, 2003), to respond with communication and compassion in conflict situations (Burnette, Davis,

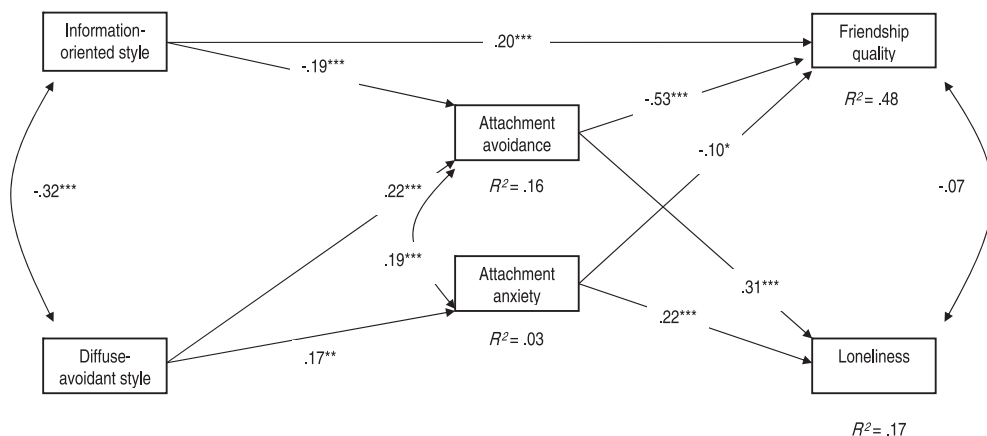


Fig. 1. Final model linking the identity styles to intimacy through attachment to friends. Gender was included as a predictor of all the variables in the model. However, for the sake of simplicity, these coefficients were not included in the figure (Amount of variance explained by gender: $R^2 = .01$ for information-oriented style, $.02$ for diffuse-avoidant style, $.03$ for attachment avoidance, $.00$ for attachment anxiety, $.02$ for friendship quality, and $.00$ for loneliness). * $p < .05$; ** $p < .01$; *** $p < .001$.

Green, Worthington, & Bradfield, 2009), and to appraise the quality of their social relationships and determine whether their relations meet their needs (Bowlby, 1973). All of these characteristics of a secure attachment can contribute to forming and maintaining close and trusting relationships with friends, which has a positive effect on friendship quality. Despite the absence of the expected direct negative relation, the information-oriented style was found to relate indirectly to loneliness through its negative association with attachment avoidance, suggesting that a secure attachment to friends can inhibit or reduce loneliness. This finding is in line with previous research in which adults who were securely attached to their romantic partner were less vulnerable to loneliness (Hazan & Shaver, 1987).

As expected, the diffuse-avoidant style related positively to loneliness, an association that was fully mediated by attachment avoidance and attachment anxiety. Emerging adults with higher scores for the diffuse-avoidant style are more likely to be insecurely attached to their friends, which makes them more likely to feel lonely. This finding is in line with previous research showing that adults with an insecure attachment to their romantic partner are more lonely (Hazan & Shaver, 1987). Despite the absence of the expected negative relation, the diffuse-avoidant style was found to relate indirectly to friendship quality through its positive association with attachment avoidance, suggesting that the diffuse-avoidant style primarily involves avoidant attachment to friends rather than low friendship quality as such. That is, adolescents using a diffuse-avoidant identity style are likely to show avoidant attachment to friends which, in turn, makes them vulnerable to lower levels of friendship quality.

Finally, with respect to the normative identity style, no significant associations with loneliness and friendship quality were obtained in the present study, precluding any mediational mechanisms on the pathway to peer relationship quality. However, when looking at the zero-order correlations, a positive association with attachment anxiety was obtained which may be symptomatic of the interpersonal functioning displayed by individuals scoring high on the normative identity style. Possibly, these individuals are not so much characterized by a preference for interpersonal distance (as indexed by attachment avoidance) but more so by worries about interpersonal relationships and fear of being rejected (as indexed by attachment anxiety). Such a fear of social rejection might follow from the conforming and obedient nature of individuals scoring high on the normative style. Of course, the present study in isolation does not permit to draw strong conclusions about the normative identity style – and, by extension, all three identity styles – and attachment-related emotions. Future research should try to replicate and expand on these findings and identify the peer and interpersonal concomitants of the normative identity style. It might be important to take into account the different motives individuals display for adopting a certain identity style. For instance, whereas some normative individuals feel pressured to follow other people's norms and values, others might genuinely identify with these norms and values. It needs to be explored whether such differential psychological mechanisms underlying identity styles might lead to differential attitudes, feelings, and behaviors in close peer relationships (Smits, Soenens, Vansteenkiste, Luyckx, & Goossens, 2010).

Limitations and suggestions for future research

Although the findings of the present study suggest that the relation between identity styles and peer relationship quality is at least partially mediated by attachment-related emotions, the current study has a number of limitations. These limitations pertain to both methodological and conceptual issues, leading to a number of suggestions for future research.

At the methodological level, the reliability for some of the subscales of the identity styles measure and the attachment measure were low, and for the normative style and attachment anxiety in particular. Further, the cross-sectional design of the study does not allow for strong statements regarding either temporal precedence or over-time changes in the constructs. To explore possible bi-directional associations and over-time changes, it is recommended that all three core concepts (i.e., identity styles, attachment-related emotions, and friendship quality) are assessed on multiple occasions. Because our sample primarily consisted of Caucasian female psychology students, results should be replicated in more diverse samples as well. Specifically, more balanced samples with regard to gender will enable future researchers to examine whether our proposed mediation model holds equally well for males and females. Finally, inclusion of multiple informants on attachment-related emotions and peer relationship quality would further strengthen our conclusions.

At the conceptual level, the attachment measure that we used was initially developed to examine romantic relationships and its items were rephrased to refer to friendship relations. It is unclear whether friendships actually serve attachment functions (e.g., provision of a safe haven in times of distress). However, the fact that we asked our participants to describe the quality of their relationship with their best friend increases the probability that this target person effectively represents an attachment figure. In addition, the measure that was used was also limited to attachment-related emotions and did not include attachment-related behaviors and representations, both of which occupy a central place in attachment theory. Using a broader measure of attachment, including affective, behavioral, and cognitive aspects, could help future researchers to build a stronger conceptual case for the proposed link between identity styles and attachment. On a related issue, although attachment representations, as assessed by means of the Adult Attachment Interview (Hesse, 2008) show a fair degree of stability over-time, these representations are considered to be malleable by relational experiences (Feeney, 2008), and, thus, possibly also by identity formation. The attachment measure that was used in the present study showed substantial stability across a period of several months (Lo et al., 2009). For now, however, it remains unclear how scores on this measure may change as a function of relevant experiences. Longitudinal studies that examine the way in which attachment-related experiences, behaviors, and emotions change as emerging adults navigate through identity-defining experiences in the college context could significantly advance the field.

Conclusion

Despite these limitations, the present study found clear associations between identity styles, attachment-related emotions, and peer relationship quality. Stronger reliance on the information-oriented style predicted more positive attachment-related emotions which, in turn, predicted better quality of emerging adults' relationships with their peers. The mirror image of these results was observed for the diffuse-avoidant style, with the use of this style being associated with lower-quality of relationship with peers through more negative attachment-related emotions.

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References

- Ainsworth, M. D. S. (1989). Attachments beyond infancy. *American Psychologist*, *44*, 709–716.
- Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford, UK: Oxford University Press.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246.
- Bentler, P. M., & Mooijart, A. (1989). Choice of structural equation models via parsimony: a rationale based upon precision. *Psychological Bulletin*, *88*, 588–606.
- Berzonsky, M. D. (1989). Identity style: conceptualization and measurement. *Journal of Adolescent Research*, *4*, 268–282.
- Berzonsky, M. D. (1990). Self-construction over the life-span: a process perspective on identity formation. In G. J. Neimeyer, & R. A. Neimeyer (Eds.), *Advances in personal construct psychology*, Vol. 1 (pp. 155–186). Greenwich, CT: JAI Press.
- Berzonsky, M. D. (2011). A social-cognitive perspective on identity construction. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 55–76). New York: Springer.
- Berzonsky, M. D., & Kuk, L. (2005). Identity style, psychosocial maturity, and academic performance. *Personality and Individual Differences*, *29*, 235–247.
- Bosma, H. A., & Kunnen, E. S. (2001). Determinants and mechanisms in ego identity development: a review and synthesis. *Developmental Review*, *21*, 39–66.
- Bowker, J. C., & Rubin, K. H. (2009). Self-consciousness, friendship quality, and adolescent internalizing problems. *British Journal of Developmental Psychology*, *27*, 249–267.
- Bowlby, J. (1973). *Attachment and loss, Separation*, Vol. 2. New York: Basic Books.
- Brennan, K. A., Clark, K. L., & Shaver, P. R. (1998). Self-report measures of adult attachment: an integrative overview. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434–465). New York: Guilford Press.
- Bukowski, W. M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: the development and psychometric properties of the friendship qualities scale. *Journal of Social and Personal Relationships*, *11*, 471–484.
- Burnette, J. L., Davis, D. E., Green, J. D., Worthington, E. L., Jr., & Bradfield, E. (2009). Insecure attachment and depressive symptoms: the mediating role of rumination, empathy, and forgiveness. *Personality and Individual Differences*, *46*, 276–280.
- Crowell, J. A., Fraley, R. C., & Shaver, P. R. (2008). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed.) (pp. 599–634). New York: Guilford Press.
- Del Giudice, M. (2011). Sex differences in romantic attachment: a meta-analysis. *Personality and Social Psychology Bulletin*, *37*, 193–214.
- Duriez, B., Luyckx, K., Soenens, B., & Berzonsky, M. (2012). A process-content approach to adolescent identity formation: examining longitudinal associations between identity styles and goal pursuits. *Journal of Personality*, *80*, 135–161.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Fairchild, A. J., & Finney, S. J. (2006). Investigating validity evidence for the experiences in close relationships – revised questionnaire. *Educational and Psychological Measurement*, *66*, 116–125.
- Feeney, J. A. (2008). Adult romantic attachment. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed.) (pp. 456–481). New York: Guilford.
- Gerson, A. C., & Perlman, D. (1979). Loneliness and expressive communication. *Journal of Abnormal Psychology*, *88*, 258–261.
- Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: social acceptance, friendships, and peer networks. *Journal of School Psychology*, *41*, 235–284.
- Grotevant, H. D. (1987). Toward a process model of identity formation. *Journal of Adolescent Research*, *2*, 203–222.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524.
- Hesse, E. (2008). The adult attachment interview: protocol, method of analysis, and empirical study. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed.) (pp. 552–598). New York: Guilford Press.
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology*, *4*, 599–610.
- Keith, T. Z. (2006). *Multiple regression and beyond*. Boston: Allyn & Bacon.
- Kennedy, J. H. (1999). Romantic attachment style and ego identity, attributional style, and family of origin in first-year college students. *College Student Journal*, *33*, 171–180.
- Kerpelman, J. L., & Pittman, J. F. (2001). The instability of possible selves: identity processes within late adolescents' close peer relationships. *Journal of Adolescence*, *24*, 491–512.
- Kline, R. B. (2005). *Principles and practices of structural equation modelling*. New York: Guilford Press.
- Lo, C., Walsh, A., Mikulincer, M., Gagliese, L., Zimmerman, C., & Rodin, G. (2009). Measuring attachment security in patients with advanced cancer: psychometric properties of a modified and brief experiences in close relationships scale. *Psycho-Oncology*, *18*, 490–495.
- Luyckx, K., Lens, W., Smits, I., & Goossens, L. (2010). Time perspective and identity formation: short-term longitudinal dynamics in college students. *International Journal of Behavioral Development*, *34*, 238–247.
- Luyckx, K., Soenens, B., Vansteenkiste, M., Goossens, L., & Berzonsky, M. D. (2007). Parental psychological control and dimensions of identity formation in emerging adulthood. *Journal of Family Psychology*, *21*, 546–550.
- Meeus, W., Iedema, J., Maassen, G., & Engels, R. (2002). Relaties met ouders en leeftijdgenoten en identiteitsontwikkeling in de adolescentie. [Relations with parents and peers and identity development in adolescence]. *Nederlands Tijdschrift voor de Psychologie*, *57*, 42–57.
- Mikulincer, M., Shaver, P. R., Bar-On, N., & Ein-Dor, T. (2010). The pushes and pulls of close relationships: attachment insecurities and relational ambivalence. *Journal of Personality and Social Psychology*, *98*, 450–468.
- Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: the dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion*, *27*, 77–102.
- Muthén, L. K., & Muthén, B. O. (2006). *Mplus user's guide* (4th ed.). Los Angeles: Muthén & Muthén.

- Nurmi, J. E., Berzonsky, M. D., Tammi, K., & Kinney, A. (1997). Identity processing orientation, cognitive and behavioral strategies and well-being. *International Journal of Behavioral Development*, 21, 555–570.
- Perlman, D., & Peplau, L. A. (1981). Toward a social psychology of loneliness. In R. Gilmour, & S. Duck (Eds.), *Personal relationships: Personal relations in disorder* (pp. 31–56). London: Academic Press.
- Pittman, J. F., Keiley, M. K., Kerpelman, J. L., & Vaughn, B. E. (2011). Attachment, identity and intimacy: parallels between Bowlby's and Erikson's paradigms. *Journal of Family Theory and Review*, 3, 32–46.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.
- Raftery, A. E. (1995). Bayesian model selection in social research. In P. V. Marsden (Ed.), *Sociological methodology* (pp. 111–163). Cambridge: Blackwell.
- Saferstein, J. A., Neimeyer, G. J., & Hagans, C. L. (2005). Attachment as a predictor of friendship qualities in college youth. *Social Behavior and Personality*, 33, 767–775.
- Satorra, A., & Bentler, P. M. (1994). Corrections to test statistics and standard errors in covariance structure analysis. In A. Von Eye, & C. C. Clogg (Eds.), *Latent variables analysis: Applications for developmental research* (pp. 399–419). Thousand Oaks, CA: Sage.
- Shaver, P. R., Furman, W. C., & Buhrmester, D. (1985). Transition to college: network changes, social skills, and loneliness. In S. Duck, & D. Perlman (Eds.), *Understanding personal relationships: An interdisciplinary approach* (pp. 193–219). London: Sage.
- Smits, I., Doumen, S., Luyckx, K., Duriez, B., & Goossens, L. (2011). Identity styles and interpersonal behavior in emerging adulthood: the intervening role of empathy. *Social Development*, 20, 664–684.
- Smits, I., Soenens, B., Berzonsky, M., Luyckx, K., Goossens, L., Kunnen, S., et al. (2009, February). The identity style inventory – version 4: a cross-national study in scale development and validation. In L. Goossens (Ed.), *Capturing identity styles: A cross-national and multi-method view on measurement*, Symposium conducted at the 16th annual conference of the Society for Research on Identity Formation (SRIF), Pacific Grove, CA.
- Smits, I., Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2010). Why do adolescents gather information or stick to parental norms? Examining autonomous and controlled motives behind adolescents' identity style. *Journal of Youth and Adolescence*, 39, 1343–1356.
- Soenens, B., Duriez, B., & Goossens, L. (2005). Social-psychological profiles of identity styles: attitudinal and social-cognitive correlates in late adolescence. *Journal of Adolescence*, 28, 107–125.
- Steiger, J. H. (1990). Structural model evaluation and modification: an interval estimation approach. *Multivariate Behavioral Research*, 25, 173–180.
- Vleioras, G., & Bosma, H. A. (2005). Are identity styles important for psychological well-being? *Journal of Adolescence*, 28, 397–409.
- Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The experiences in close relationship scale (ECR) – short form: reliability, validity, and factor structure. *Journal of Personality Assessment*, 88, 187–204.
- Zimmermann, P., & Becker-Stoll, F. (2002). Stability of attachment representations during adolescence: the influence of ego-identity status. *Journal of Adolescence*, 25, 107–124.