



How to avoid others and influence people: Attachment orientations predict leader prototypicality in ad hoc teams

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ABSTRACT

The existing literature has explored the role and importance of personality traits in leader prototypicality. However, limited research exists concerning the link between personality traits and leader emergence or prototypicality in ad hoc teams. Based on the relational leadership and attachment literature, we examine whether leader attachment orientations can serve as antecedents of leader prototypicality in ad hoc teams. Utilizing an ad hoc problem-solving task featuring a round-robin design in a sample of 197 participants, we find that individuals with a dominant avoidant attachment orientation were more likely to be perceived as leader-like or leader prototypical. In comparison, individuals with a dominant anxious attachment orientation were much less likely to emerge as leader prototypical. We interpret these findings in alignment with attachment theory and relational leadership and discuss the role of relational personality traits in ad hoc teams with no formally appointed leader.

1. Introduction

Leader emergence, the degree to which one or more team members perceive an individual with no formal status or authority as exhibiting leaderlike influence (Hanna et al., 2021: 7), has been studied extensively in the leadership literature. The well-timed emergence of a leader promotes cooperation and improved performance in groups and organizations (Liu et al., 2018; Zhang et al., 2012) and reduces uncertainty and anxiety about what lies ahead (Gruda, Karanatsiou, Mendhekar, et al., 2021; Gruda, Ojo, & Psychogios, 2022). Furthermore, because leader emergence partially depends on cognitive perceptions, the more leaderlike or leader prototypical a team member seems, the more likely that others will recognize this person as a team leader (Epitropaki et al., 2017).

Prior research on the antecedents of leader emergence in traditional organizational settings has focused primarily on the Big Five personality traits (e.g., Cogliser et al., 2012; Ensari et al., 2011; Hu et al., 2019) or the dark triad traits (Gruda, Karanatsiou, et al., 2022; Gruda, Karanatsiou, Hanges, et al., 2021; Gruda, Karanatsiou, Mendhekar, et al., 2021). However, no previous studies have examined relational personality traits as antecedents of leader emergence in ad hoc teams. The nature of ad hoc teams dictates that such teams have little or no shared history but must work together effectively mere moments after their

initial meeting (Bienefeld & Grote, 2014; Bigley & Roberts, 2001; Klein et al., 2006). Therefore, it is unlikely that existing findings on antecedents of leader emergence in traditional long-term teams directly apply to the study and understanding of ad hoc teams. This study takes a step forward toward the understanding of leader emergence in ad hoc teams by applying a relational leadership perspective.

A growing body of literature conceptualizes leadership as relational, defined as an interpersonal process of influence (Marchiondo et al., 2015; Tsai et al., 2017) in which individuals commonly seek high-quality relationships with others, including leaders, to foster and increase their psychological well-being. Indeed, interpersonal interactions and the phenomena nested within them are critical antecedents to relationship quality and presuppose the need to examine relational leader-follower characteristics (Gruda & Kafetsios, 2020) such as attachment orientations. We argue that attachment orientations are particularly well-suited to explaining leader emergence because attachment orientations predict relationship quality in leader-follower relationships (Gruda, Berrios, et al., 2022; Gruda & Kafetsios, 2020; Harms et al., 2016; Kafetsios & Gruda, 2018). However, although the relational leadership literature has propelled attachment theory to the forefront of the study of leader-follower relationships and dynamics (e.g., Epitropaki et al., 2013; Thomas et al., 2013), a relative paucity of studies (for an exception see Yang et al., 2020) have examined the role of

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attachment orientations as antecedents of leader emergence and prototypicality. No single study has examined the role of these relational traits in non-traditional teams, such as ad hoc teams. This fact is surprising, as attachment theory is one of the most well-established relationship theories in psychology, and prior research serves as evidence for the application of attachment theory within the leader-follower domain (e.g., Gruda & Kafetsios, 2020). As a result, and at the center-piece of this study, we argue that individuals' relational traits are associated with (other team members') attributed perceptions of leader prototypicality, specifically in ad hoc teams. We examine this association in a sample of 197 work professionals in 51 teams resulting in 586 observations using a round-robin research design.

1.1. Attachment orientations and leader perception

Attachment is the tendency to develop emotional bonds with others (Bowlby, 1969) and shapes the way people interact, think, and feel toward others across their life span (Mikulincer & Shaver, 2018). Attachment is more indicative of relationship quality than broader traits (Richards & Hackett, 2012; Yip et al., 2018), and attachment orientations also relate to leader perception (Gruda, 2017; Gruda & Kafetsios, 2020; Kafetsios & Gruda, 2018), emotion regulation (Kafetsios et al., 2014), and organizational dynamics (Ramos & Lopez, 2018; Yip et al., 2018). A few previous studies examined the relationship between attachment orientations and leadership, including leader perceptions (Keller, 2003), leader performance (Bresnahan & Mitroff, 2007; Keller, 2003), and leader transference (Gruda & Kafetsios, 2020). The primary objective of the behavioral attachment system is to protect against unpleasant experiences with an attachment figure (e.g., a leader) by influencing how individuals process and interpret social interactions and cues (Dykas & Cassidy, 2011; Thompson, 2008), including during workplace interactions with peers and supervisors.

Reactions to relational stimuli shape whether individuals view themselves as valued and worthy of affection by others or unworthy of recognition and affection (Mikulincer & Shaver, 2018). While anxious attachment reflects individual differences in the monitoring and appraisal of others concerning availability and accessibility, avoidant attachment reflects attachment-related regulation of thoughts, feelings, and behavior. Secure attachment results from relatively low levels of avoidant and anxious attachment dimensions, and most individuals score low on anxious and avoidant attachment dimensions, indicating a dominant secure attachment orientation (Mikulincer & Shaver, 2018). All three attachment orientations are part of every individual, although one is usually prepotent. Individuals differ significantly in their relational reaction and affective perception of others, depending on their dominant attachment orientation. We posit that these relational characteristics may predict leader prototypicality in specific team settings that do not allow team members to build long-term relationships, specifically ad hoc teams.

1.2. Attachment orientations and leader perception in ad hoc team settings

Teamwork and team composition are essential factors to ensure team success. However, not all teams serve as long-term teams. One exception to traditional long-term (organizational) teams is ad hoc teams. Team members in ad hoc teams must a) collaborate and work toward a common objective, such as reaching a consensus and communicating a decision on a particular matter (e.g., public policy), b) must do so without the opportunity to establish or specify coordination mechanisms and c) team composure is determined by an external authority or selection process, leaving team members without any say on this matter (Mirsky et al., 2022). Moreover, because ad hoc teams are composed "on the fly" based on available human resources and talent at a particular time, ad hoc teams can also be described as teams with varying membership. Put differently, roles in ad hoc teams are filled by different people over time,

with team members changing across shifts and rotations. Examples include teams in the medical sector (White et al., 2018) or the aviation sector (i.e., multi-system aircrew teams; Bienefeld & Grote, 2014). These teams are composed of autonomous individuals – frequently experts in their respective specialized fields – who must collaborate with very little notice. In these sectors, most teams are composed on an ad hoc basis. For example, 72 % of medical teams rely on ad hoc teamwork (White et al., 2018).

Ad hoc teams can differ significantly from long-term organizational teams in traditional settings. For example, in ad hoc teams, role designations to individual team members may not be viable as teams are composed continuously and are situation- or context-specific based on the available resources. Due to the inconsistent makeup of ad hoc teams, such teams face some challenges, including lack of cohesion, less developed team identity, and reduced trust; however, ad hoc teams may also benefit from lower susceptibility to group biases such as groupthink (Mannion & Thompson, 2014). In addition, ad hoc multidisciplinary teams, such as public committees or organizational committees (Chandrasekaran et al., 2017) often bring together experts in various fields to discuss, reach a consensus and make essential decisions on matters such as public or health policy, organizational accountability, or responsibility (Agmon et al., 2014), or recruitment-panel decisions (Chandrasekaran et al., 2017). Frequently, these ad hoc teams do not have much time to make a joint decision, as was the case with the committees set up to make initial decisions on social movement restrictions due to the SARS-CoV-2 pandemic (McCleskey & Gruda, 2020). Interestingly, in such multidisciplinary ad hoc teams, leadership is not always predetermined by an external authority; instead, power and leadership often transcend existing hierarchies and are not always centered around the person at the top of the hierarchy (Frauendorfer et al., 2015). A degree of familiarity or previous relevant experience with the matter at hand (i.e., specialized knowledge or expertise in a niche topic or field) can be predictive of seizing and maintaining authority and team leadership.

We argue that it is likely that in these kinds of settings, team members who forgo building long-term relationships with their team members – a sought-after quality in leaders in traditional organizational settings – and instead focus on completing the task and reaching a consensus or team decision are most likely to emerge as leaders. To test this relationship, we examine the role of leader attachment orientations, namely anxious and avoidant attachment, in predicting leader emergence in an ad hoc team setting.

The attachment literature states that anxiously attached individuals seek psychological intimacy and nurturing support (i.e., they remain close to others and consistently worry about others' being there for them). Anxiously attached individuals "feel they are unworthy of responsiveness from others" (Richards & Schat, 2011: 170). They are perceived as less competent or dependable and lacking leadership abilities (Davidovitz et al., 2007; Kafetsios et al., 2014). In contrast, avoidantly attached individuals tend to experience deactivation by limiting their interactions with others as much as possible, becoming self-reliant, and preferring emotional distance to shield themselves from the expected lack of dependability from and support of, others (Mikulincer & Shaver, 2005, 2018). This deactivating strategy impairs their socio-emotional functioning (Rom & Mikulincer, 2003), represses negative emotions, and diminishes the value of supportive relationships (i.e., they stereotypically view others negatively; Gruda & Kafetsios, 2020; Karanatsiou et al., 2022). Statements such as "others cannot be trusted to be responsive when needed" (Richards & Schat, 2011: 170) are indicative of avoidant attachment.

We argue that this self-reliance and non-reliance on others likely makes avoidantly attached individuals likely to emerge as leaders and be perceived as most leader-like, specifically in ad hoc team settings that reward collaboration without prior knowledge of, or coordination with others. For example, some previous empirical support suggested that based on the task and cultural perceptions of the population, avoidantly

attached individuals are more likely to be preferred in authority positions than anxiously attached individuals (Kafetsios et al., 2014). We argue that, within an ad hoc team environment, avoidantly attached individuals' tendency to express their assertiveness and take over control due to their mistrust of others and others' abilities likely leads others to perceive avoidantly attached individuals as more leader prototypical than anxiously attached participants. Accordingly, we hypothesize the following:

Hypothesis. Avoidant attached individuals are more likely to be perceived as leader-like in an ad hoc team setting (1a), and avoidantly attached individuals are more likely to be perceived as leaders than anxiously attached individuals (1b).

2. Methodology

We adopted a two-dimensional approach to measuring followers' attachment orientations (Fralely et al., 2015). It is important to note that although one dominant attachment orientation guides individuals, everyone embodies and exhibits associated behaviors of both insecure attachment orientations to various degrees, similar to Big Five personality traits. In keeping with previous research studies (e.g., Gruda & Kafetsios, 2020), and because we base our hypothesis on a comparison between anxious and avoidant attachment, we tested our hypothesis by examining the interaction between anxious and avoidant attachment within the same model.

2.1. Procedure and sample

A sample of 197 MSc and MBA students with work experience (57.36% female, $M_{\text{age}} = 22.60$ years; $SD = 2.33$ years) across 51 groups consisting of 4–5 randomized team members participated in a series of individual measurements and an ad hoc problem-solving task (see below for description), which facilitated initial interactions between team members. After task completion, we asked participants to evaluate all other team members, resulting in 586 total observations across 51 groups (4–5 members per group).

First, on an individual basis, students completed a fluid intelligence test (Vernon, 1993) and measures of attachment, Big Five personality traits, and demographics. Second, after a quick break, we randomized participants into groups of four (and one team of five). We ensured that group members collaborated with others without prior coordination in an ad hoc team setting. We handed each team a set of sequential pictures in randomized order, known as the "Zoom-Rezoom Task" (Banyai, 1998). The task involves handing out a series of (30) pictures in a randomized order to team members. We used a slightly modified version of the same task to save time since group sizes were limited to four team members. Instead of each team receiving all 30 pictures, each team member received three pictures, hence 12–15 pictures in total. Each set of 12–15 images tells a story. Participants were not allowed to show their assigned pictures to their team members during this task but instead had to rely on describing each picture they held in their hands to the rest of their team. Each team must reach an agreement and determine the correct picture sequence. Due to this difficulty, the respective task requires a high degree of communication, interdependence, and interaction between team members. Once the team reached an agreement on the correct picture order and handed the ordered images back to the instructor, the task was marked as completed. The task itself lasted 15–20 min.

Subsequently, participants evaluated all their team members on leadership prototypicality. The leader prototypicality items (Cronshaw & Lord, 1987) were modified to refer to the team task.

2.2. Measures

2.2.1. Dependent variable

2.2.1.1. Leader prototypicality. All participants evaluated each other in terms of their leader prototypicality using the General Leadership Impression (GLI) scale by Cronshaw and Lord (1987). While this scale does not measure specific leadership behaviors, it is a reasonable assumption that as individuals engage more often in leader-specific behaviors, they would also be more likely to be perceived as more leader-like than team members who do not display leadership-related behaviors. In addition, it might be of scholarly interest to dissect which specific leader behaviors are most likely to lead to higher leader prototypicality ratings, given the short duration of the task.

We replaced "superior" with "this person" in this study, asking all participants to evaluate all other team members. Based on this rating, each participant received an aggregated leadership score (i.e., leader prototypicality was assessed based on within-group ratings of leadership prototypicality; $\alpha = 0.95$). Importantly, self-rated leader prototypicality scores were excluded from the analysis. Hence, every person in each team received a composed leader prototypicality score based on the ratings of three other team members (in a team of four).

We examined intraclass correlations (ICC1s) from one-way analyses of variance for peer-rated measures of leader prototypicality to evaluate the adequacy of within-team agreement and between team differences (Kenny & Lavoie, 1984). We found high agreement between various raters on leader prototypicality (ICC1 = 0.69). Sample items include "To what degree does this person fit your image of what a leader should be?" and "How much leadership does this person exhibit?", scored on a 5-point Likert scale from 1 ("none") to 5 ("a lot").

2.2.2. Independent variables

2.2.2.1. Attachment orientations. Attachment orientations were measured using the Richards and Schat (2011) adaptation of Brennan et al. (1998) Experience in Close Relationships scale (ECR). The ECR consists of 36 items on two subscales: attachment anxiety and attachment avoidance. Participants rated, on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree), the extent to which each item described their feelings in close relationships. Anxious attachment ($\alpha = 0.84$) comprises eighteen items, for example, "I need a lot of reassurance that I am liked and appreciated by other people" and "My desire to be very close sometimes scares people away." Similarly, the subscale for avoidant attachment ($\alpha = 0.87$) also contains eighteen items, for example, "I turn to others for many things, including comfort and reassurance" and "I am very comfortable being close to others" (both reverse-scored).

2.2.3. Control variables

2.2.3.1. Big Five personality traits. To ensure appropriate discriminant validity analyses, we controlled for the effects of the five-factor model (FFM) or the so-called "Big Five". Controlling for the Big Five is important as certain Big Five traits (e.g., neuroticism) overlap to some extent with both attachment orientations, as is the case in this study. Therefore, by controlling for all Big Five traits in our models, we are accounting for respective shared variance (or overlap) between these traits. We do so using the IPIP scale (International Personality Item Pool; Goldberg et al., 2006). The IPIP measures all five personality traits including openness to experience ($\alpha = 0.78$); conscientiousness ($\alpha = 0.81$); extraversion ($\alpha = 0.88$); agreeableness ($\alpha = 0.85$); and neuroticism ($\alpha = 0.77$), on a five-point scale ranging from (1) "very inaccurate" to (5) "very accurate" using ten items for each dimension.

2.2.3.2. Fluid intelligence. Because leadership tends to be a generally

cognitively demanding task in terms of performance requirements, higher cognitive ability or intelligence likely increases the likelihood of engaging in such tasks (Reitan & Stenberg, 2019; Zaccaro et al., 2018), in turn increasing the likelihood of leader role occupancy (Daly et al., 2015) and leader emergence (Day & Sin, 2011). Another perspective is that individuals higher in general intelligence also tend to be perceived as more leader-like by followers (Lord et al., 1986). To control for the importance of this association between intelligence and leader emergence, we account for intelligence as a potential leader prototypicality control variable. To save time, however, instead of administering a complete intelligence test, we tested fluid intelligence. This task is known as the “Zahlenverbindungstest” (Vernon, 1993) and correlates highly with intelligence. This task is a “trail-making test in which subjects draw lines to connect, in order, circled numbers from 1 to 90, which are positioned more or less randomly on a piece of paper, and four other different versions of the ZVT” (Vernon, 1993: 35). Performance measures across the four rounds formed a new variable ($\alpha = 0.89$).

2.2.3.3. *Demographics.* We also controlled for basic demographics, including age, gender, and education.

3. Results

As individual participants are nested within teams, observations within our dataset are non-independent (Rabe-Hesketh & Skrondal, 2008). Hence, we fitted a multilevel mixed-effects regression model, which accounted for the two levels of nesting in the data. We introduced individual differences characteristics, one at a time, as controls. Table 1 provides the correlations between the main variables, and Table 2 presents the results of step-by-step multilevel regressions. The complete model (M5) includes all examined controls (i.e., fluid intelligence, Big Five personality traits, and demographics).

We find a significant positive relationship between avoidance attachment and leader prototypicality (M5; $b = 0.22$, $SE = 0.10$, $z = 2.14$, $p = .032$). This effect remains significant across all models. It seems individuals who score high on avoidance attachment are likely to be perceived as prototypical leaders. Additionally, they are more likely to be perceived as leaders than individuals with an anxious attachment dimension (M5: $b = 0.17$; $SE = 0.10$, $z = 1.75$, $p = .081$). The interaction between anxious and avoidant attachment, namely fearful attachment, also was significant (M5: $b = -0.06$; $SE = 0.027$, $z = -2.03$, $p = .042$). To interpret these results, we graphed the interaction accordingly (Fig. 1).

Graphing the interaction (+/- 1SD, Fig. 1) shows that avoidant attached participants (i.e., participants who score high on avoidance attachment and low on anxious attachment) were rated as more

leaderlike or leader prototypical (simple slope = 0.08, $SE = 0.04$, $z = 2.02$, $p = .043$) than participants who scored high on anxious (and avoidant) attachment (simple slope = -0.01, $SE = 0.03$, $z = -0.37$, $p > .10$).

To better interpret these results, we also graph results using bar charts, as displayed in Fig. 2. Here, the positive association between avoidant attachment and leader prototypicality is displayed even more clearly. We discuss these results in the following section.

4. Discussion

Previous studies on attachment have shown that individuals with an insecure attachment style are prone to bias in how others perceive them, resulting in such individuals being frequently evaluated more negatively than securely attached individuals (Davidovitz et al., 2007; Dewitte & De Houwer, 2011; Mikulincer & Shaver, 2018). In this manuscript, we investigated whether – and in specific ad hoc team contexts - insecure individuals may be seen as more (not less) leader-like than other members of the team. Put differently, we examined whether attachment orientations can help predict leader emergence in ad hoc teams.

We find that avoidant attachment positively predicts leader prototypicality attributions by team members in ad hoc team settings. Avoidant attachment is strongly associated with self-protective responses without the need to consult with others or seek help (Ein-Dor, 2014). Mickelson et al. (1997) further argued that avoidantly attached individuals are likely to be protected from social and economic stressors due to the relative cognitive consistency associated with avoidant attachment in early socialization experiences. The same line of reasoning has been found and applied in other research on attachment orientations and attention control (Gillath et al., 2009). This cognitive consistency does not mean that avoidantly attached individuals are not preoccupied with attachment-related thoughts and emotions, but rather, as suggested by Sakman and Sümer (2018), avoidantly attached individuals have learned to suppress this information. This suppression likely means that avoidantly attached individuals are more concerned with getting ahead than getting along, as they are more focused on the task than creating and maintaining team harmony, and this finding is also consistent with socio-analytic theory (Hu et al., 2019).

We argue that the presented results are due to this study's nature and type of problem-solving task. The goal was to randomize participants into artificially created ad hoc teams, and present teams with a problem-solving task that was a) short, b) only included one round of decision-making (instead of several repetitions over time, which would require team members to act in a more supportive, approachable, and emotionally sensitive manner) and c) did not allow for team formation to be changed by the team. Doing so ensured that team members did not

Table 1
Pairwise Correlations of main variables.

Variables	M	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Leader Prototypicality	3.30	0.47	(0.95)										
(2) Anxious Attachment	3.45	0.81	-0.09	(0.84)									
(3) Avoidant Attachment	3.37	0.88	-0.05	0.24***	(0.87)								
(4) Openness to Experience	3.79	0.59	0.01	-0.13	-0.10	(0.78)							
(5) Conscientiousness	3.72	0.69	-0.05	0.08	-0.12	0.04	(0.81)						
(6) Extraversion	3.50	0.78	0.09	-0.14	-0.47***	0.31***	-0.05	(0.88)					
(7) Agreeableness	3.32	0.63	0.10	0.05	-0.38***	0.12	0.05	0.33***	(0.85)				
(8) Neuroticism	1.65	0.67	-0.15*	0.47***	0.24***	-0.12	-0.06	-0.14	-0.05	(0.77)			
(9) Fluid Intelligence	51.21	8.09	-0.01	0.10	-0.15*	-0.01	0.20**	0.13	0.07	-0.06	(0.89)		
(10) Age	22.61	2.33	0.08	-0.19**	-0.04	-0.01	-0.00	-0.09	-0.20**	-0.14	-0.24***	-	
(11) Gender	1.43	0.50	0.06	-0.13	0.09	0.07	0.02	-0.05	-0.26***	-0.22**	-0.08	0.12	-
(12) Education	2.31	0.49	0.01	-0.00	-0.07	0.02	-0.03	0.11	0.01	0.04	-0.04	-0.01	0.01

Note: Education = completed degree (1 = High-School, 2 = Bachelor degree, 3 = Master degree); Gender coded as 1 (male) and 2 (female); Cronbach alpha reliabilities on the diagonal in parentheses, where applicable; $n = 197$.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

Table 2
Multilevel regression predicting leader prototypicality.

	M1			M2			M3			M4			M5			[95 % CI]
	<i>b</i>	<i>SE</i>	<i>z</i>	<i>b</i>	<i>SE</i>	<i>z</i>	<i>b</i>	<i>SE</i>	<i>z</i>	<i>b</i>	<i>SE</i>	<i>z</i>	<i>b</i>	<i>SE</i>	<i>z</i>	
Anxious Attachment				0.16 [†]	0.09	1.79	0.16 [†]	0.09	1.71	0.16	0.10	1.60	0.17 [†]	0.10	1.75	[-0.02, 0.36]
Avoidant Attachment				0.21*	0.10	2.14	0.20*	0.10	2.00	0.21*	0.10	1.99	0.22*	0.10	2.14	[0.02, 0.43]
Anxious * Avoidant Attachment				-0.06*	0.03	-2.19	-0.06*	0.03	-2.07	-0.05 [†]	0.03	-1.95	-0.06*	0.03	-2.03	[-0.11, 0.00]
Fluid intelligence	0.00	0.00	-1.00				0.00	0.00	-1.00	0.00	0.00	-1.09	0.00	0.00	-0.78	[-0.01, 0.00]
Openness	-0.03	0.03	-0.94							-0.03	0.03	-0.99	-0.03	0.03	-0.89	[-0.09, 0.03]
Conscientiousness	0.00	0.02	-0.11							0.00	0.02	0.09	0.00	0.02	-0.07	[-0.04, 0.04]
Extraversion	-0.01	0.03	-0.31							0.00	0.03	-0.10	0.01	0.03	0.42	[-0.04, 0.07]
Agreeableness	0.04	0.04	1.25							0.05	0.04	1.30	0.06	0.04	1.53	[-0.02, 0.13]
Neuroticism	-0.04	0.03	-1.43							-0.05	0.03	-1.49	-0.04	0.03	-1.24	[-0.11, 0.02]
Age	0.01 [†]	0.01	1.75										0.02*	0.01	2.09	[0.00, 0.03]
Gender	0.04	0.04	1.14										0.03	0.03	0.86	[-0.04, 0.09]
Education (completed)																
High-School degree																
Bachelor degree																
Master degree																
Constant	3.05***	0.38	8.01	2.71	0.36***	7.60	2.85***	0.40	7.13	2.86***	0.53	5.39	2.14***	0.65	3.30	[0.87, 3.41]
Wald χ^2	13.77			8.16*			9.01 [†]			21.84**			32.08**			
N (observations)	577			586			580			580			577			

n(groups) = 51.

[†] $p < .10$.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

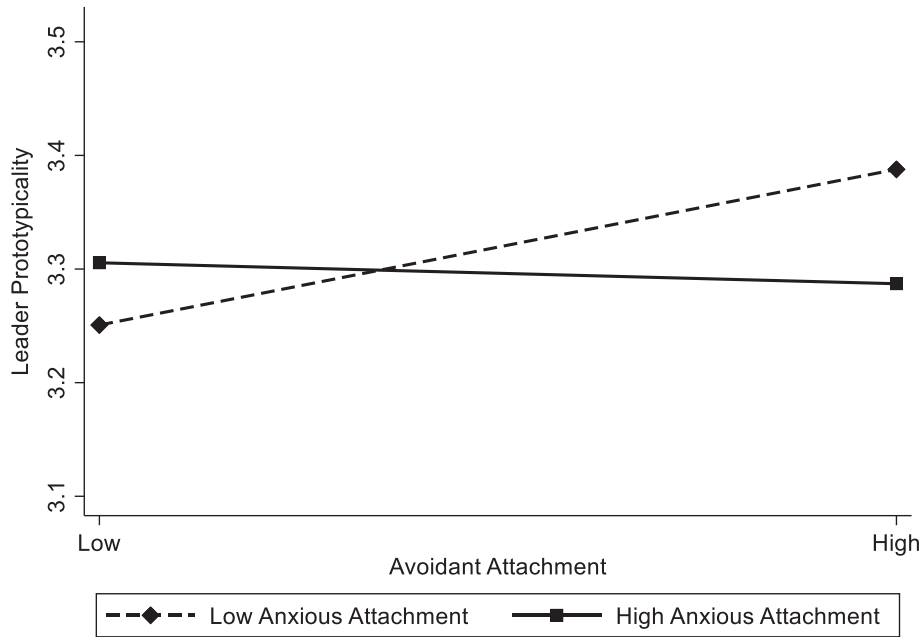


Fig. 1. Interaction (plot) between anxious and avoidant attachment predicting leader prototypicality.

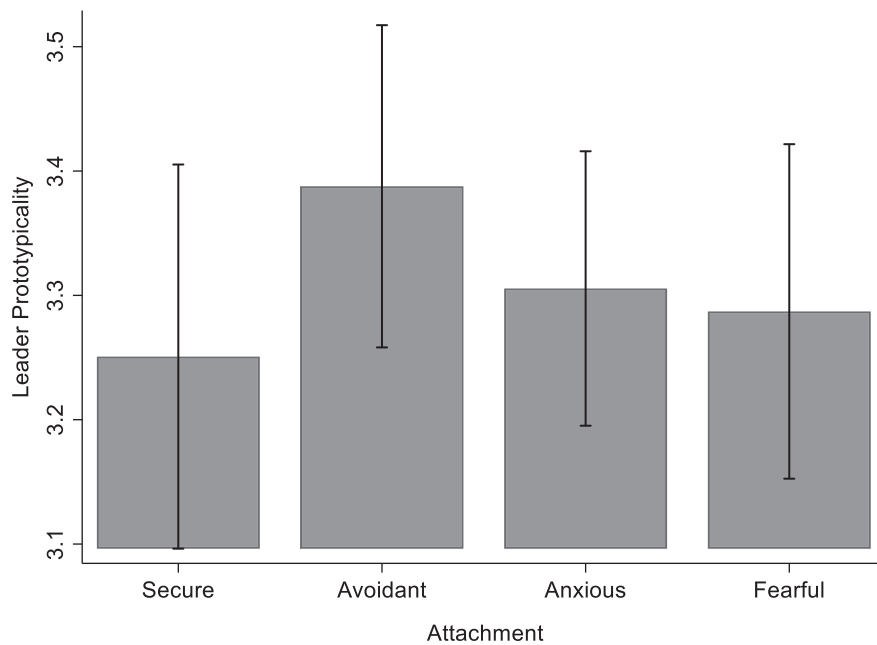


Fig. 2. Interaction (bar chart) between anxious and avoidant attachment predicting leader prototypicality. Note: Secure = low anxious and avoidant attachment; Fearful = high anxious and avoidant attachment.

have the opportunity to establish or specify coordination efforts or mechanisms before the task commenced. Put differently, they had to collaborate without prior coordination, a key feature of ad hoc teams (Mirsky et al., 2022). In addition, since participants were assigned randomly to teams, we could control the degree of (little to no) prior knowledge of team members. Therefore, team members were less inclined to establish a trusting relationship with all team members and instead relied on initial impressions and generalized team member expectations. We argue that in this kind of ad hoc team environment, behavioral strategies focusing on getting ahead rather than getting along are more likely to succeed; these are behavioral strategies most akin to avoidantly attached individuals, who seem more likely to thrive and be

perceived as leader prototypical in the examined context.

Finally, this study is one of the few that studies the emergence of leadership in ad hoc teams. Indeed, while the vast majority of the leadership literature has focused on examining leadership in traditional corporate and long-term teams, very little is known about leadership in ad hoc teams. We argue that studying leadership in such teams is important because ad hoc teams fulfill important functions in organizations (e.g., in the form of ad hoc committees) and are prevalent in other leadership-related environments as well, such as in medical settings (White et al., 2018). In addition, ad hoc teams might prove to be more beneficial for organizations than traditional teams – depending on resourcing and team purpose – because they do not necessarily require

the a priori appointment of a team leader. Instead, leadership emerges more naturally in such teams, which makes them a very interesting and insightful setting for the study of leadership in general.

5. Limitations

We acknowledge that our study is not without limitations. First, the task simulates interactions between team members for research purposes and cannot fully mimic real-life organizational settings and dynamics. Therefore, it might not be directly applicable in ad hoc teams such as public policy or organizational committees in organizational settings. Nevertheless, we argue that the critical features of the presented problem-solving task (i.e., lack of prior coordination, collaborating with others toward a common goal, and the lack of autonomy to determine team composition) are comparable to the type of work and akin to the nature of ad hoc teams.

Second, our measure of leader prototypicality is unlikely to relate to actual team performance since participants received their performance evaluation only after completing the study. While this does not allow us to stipulate how participants would have rated other team members if their team performance were revealed before having completed the measures of leader prototypicality, this also means that participants did not evaluate others based on team effectiveness but solely on perceived leader prototypicality.

Third, while the majority of previous studies have focused exclusively on leadership and leader prototypicality in long-term teams, the contribution of this study is to offer a different perspective, namely solely focusing on the study of a different team type (i.e., ad-hoc teams) which are generally overlooked in the leadership domain. However, we would encourage scholars to conduct a context comparison study – which would allow researchers to directly contrast leader prototypicality in both ad-hoc vs. long-term teams using the same (or similar) task. This would allow us to make an even stronger case for the differences due to the context in which leadership occurs.

Finally, while we are confident that the applied task in the presented study was useful in examining the emergence of leaders in ad-hoc teams, we acknowledge that the task was solely applicable to this study and did not carry any meaningful organizational impact. For future studies, we would encourage using tasks that do have some degree of ultimate impact. An example of such a task could be an ad-hoc student committee deciding on the implementation of a university policy as part of a consultation with the wider student body community. It would be interesting to examine the effect of individual characteristics, such as attachment orientations, on natural leadership emergence in such teams.

6. Conclusion

In this manuscript, we argue and find that individuals' relational characteristics – namely attachment orientations – serve as antecedents of leader emergence in ad hoc teams. Using an ad hoc problem-solving team task, we find that avoidantly attached individuals emerge as more likely to be perceived as prototypical leaders by other team members and interpret our findings in line with the attachment theory and relational leadership literature.

Consent to participate and publish

Informed consent was obtained from all individual participants included in the study.

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The authors have no relevant financial or non-financial interests to disclose.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Declaration of competing interest

The authors of the aforementioned submitted manuscript certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or nonfinancial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

References

- Agmonet al., n.d., N. Agmon S. Barrett P. Stone Modeling uncertainty in leading ad hoc teams. Paper presented at the 13th international conference on autonomous agents and multiagent systems (AAMAS).
- Banyai, I. (1998). Zoom. Turtleback Books. <https://books.google.de/books?id=Ivo-PgAACAAJ>.
- Bienefeld, N., & Grote, G. (2014). Speaking up in ad hoc multiteam systems: Individual-level effects of psychological safety, status, and leadership within and across teams. *European Journal of Work and Organizational Psychology, 23*(6), 930–945.
- Bigley, G. A., & Roberts, K. H. (2001). The incident command system: High-reliability organizing for complex and volatile task environments. *Academy of Management Journal, 44*(6), 1281–1299.
- Bowlby, J. (1969). *Attachment and loss, volume i: Attachment*.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment. In *Attachment theory and close relationships* (p. 46).
- Bresnahan, C. G., & Mitroff, I. I. (2007). *Leadership and attachment theory*.
- Chandrasekaran, M., Doshi, P., Zeng, Y., & Chen, Y. (2017). Can bounded and self-interested agents be teammates? Application to planning in ad hoc teams. *Auton. Agent. Multi-Agent Syst., 31*(4), 821–860.
- Cogliser, C. C., Gardner, W. L., Gavin, M. B., & Broberg, J. C. (2012). Big five personality factors and leader emergence in virtual teams: Relationships with team trustworthiness, member performance contributions, and team performance. *Group & Organization Management, 37*(6), 752–784.
- Cronshaw, S., & Lord, R. (1987). Effects of categorization, attribution, and encoding processes on leadership perceptions. *Journal of Applied Psychology, 72*(1), 97–106.
- Daly, M., Egan, M., & O'Reilly, F. (2015). Childhood general cognitive ability predicts leadership role occupancy across life: Evidence from 17,000 cohort study participants. *The Leadership Quarterly, 26*(3), 323–341. <https://doi.org/10.1016/j.leaqua.2015.03.006>
- Davidovitz, R., Mikulincer, M., Shaver, P. R., Izsak, R., & Popper, M. (2007). Leaders as attachment figures: Leaders' attachment orientations predict leadership-related mental representations and followers' performance and mental health. *Journal of Personality and Social Psychology, 93*(4), 632.
- Day, D. V., & Sin, H. P. (2011). Longitudinal tests of an integrative model of leader development: Charting and understanding developmental trajectories. *The Leadership Quarterly, 22*(3), 545–560. <https://doi.org/10.1016/j.leaqua.2011.04.011>
- Dewitte, M., & De Houwer, J. (2011). Attachment-style differences in the appraisal of the attachment figure. *European Journal of Personality, 25*(3), 173–183.
- Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: Theory and evidence. *Psychological Bulletin, 137*(1), 19.
- Ein-Dor, T. (2014). Facing danger: How do people behave in times of need? The case of adult attachment styles. *Frontiers in Psychology, 5*, 1452. <https://doi.org/10.3389/fpsyg.2014.01452>
- Ensari, N., Riggio, R. E., Christian, J., & Carlsaw, G. (2011). Who emerges as a leader? Meta-analyses of individual differences as predictors of leadership emergence. *Personality and Individual Differences, 51*(4), 532–536.
- Epitropaki, O., Kark, R., Mainemelis, C., & Lord, R. G. (2017). Leadership and followership identity processes: A multilevel review. *The Leadership Quarterly, 28*(1), 104–129.
- Epitropaki, O., Sy, T., Martin, R., Tram-Quon, S., & Topakas, A. (2013). Implicit leadership and followership theories “in the wild”: Taking stock of information-processing approaches to leadership and followership in organizational settings. *The*

- Leadership Quarterly, 24(6), 858–881. <https://doi.org/10.1016/j.leaqua.2013.10.005>
- Fraley, R. C., Hudson, N. W., Heffernan, M. E., & Segal, N. (2015). Are adult attachment styles categorical or dimensional? A taxometric analysis of general and relationship-specific attachment orientations. *Journal of Personality and Social Psychology, 109*(2), 354–368. <https://doi.org/10.1037/pspp0000027>
- Fraundorfer, D., Schmid, M. M., Sanchez-Cortes, D., & Gatica-Perez, D. (2015). Emergent power hierarchies and group performance. *International Journal of Psychology, 50*, 392–396. <https://doi.org/10.1002/ijop.12102>. PMID: 25287577.
- Gillath, O., Giesbrecht, B., & Shaver, P. R. (2009). Attachment, attention, and cognitive control: Attachment style and performance on general attention tasks. *Journal of Experimental Social Psychology, 45*(4), 647–654.
- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality, 40*(1), 84–96.
- Gruda, D. (2017). *I know a leader when I see one: Implicit leadership theories and attachment styles*. *Academy of management proceedings*.
- Gruda, D., Berrios, R., Kafetsios, K., & McCleskey, J. (2022). Time after time: Attachment orientations and impression formation in initial and longer-term team interactions. *Frontiers in Psychology, 2021*.
- Gruda, D., & Kafetsios, K. (2020). Attachment orientations guide the transfer of leadership judgments: Culture matters. *Personality and Social Psychology Bulletin, 46*(4), 525–546.
- Gruda, D., Karanatsiou, D., Hanges, P., Golbeck, J., & Vakali, A. (2022). Don't go chasing narcissists: A relational-based and multiverse perspective on leader narcissism and follower engagement using a machine learning approach. *Personality and Social Psychology Bulletin, 1–18*.
- Gruda, D., Karanatsiou, D., Hanges, P., Goldbeck, J., & Vakali, A. (2021). Leader narcissism and follower engagement—a machine learning approach. *Academy of Management Proceedings, 2021*(1), 13307.
- Gruda, D., Karanatsiou, D., Mendhekar, K., Golbeck, J., & Vakali, A. (2021). I alone can fix it: Examining interactions between narcissistic leaders and anxious followers on Twitter using a machine learning approach. *Journal of the Association for Information Science and Technology, 72*(11), 1323–1336.
- Gruda, D., Ojo, A., & Psychogios, A. (2022). Don't you tweet me badly: Anxiety contagion between leaders and followers in computer-mediated communication during COVID-19. *PLoS One, 17*(3), Article p.e0264444.
- Hanna, A. A., Smith, T. A., Kirkman, B. L., & Griffin, R. W. (2021). The emergence of emergent leadership: A comprehensive framework and directions for future research. *Journal of Management, 47*(1), 76–104.
- Harms, P., Bai, Y., & Han, G. H. (2016). How leader and follower attachment styles are mediated by trust. *Human Relations, 69*(9), 1853–1876.
- Hu, J., Zhang, Z., Jiang, K., & Chen, W. (2019). Getting ahead, getting along, and getting prosocial: Examining extraversion facets, peer reactions, and leadership emergence. *Journal of Applied Psychology, 104*(11), 1369.
- Kafetsios, K., Athanasiadou, M., & Dimou, N. (2014). Leaders' and subordinates' attachment orientations, emotion regulation capabilities and affect at work: A multilevel analysis. *The Leadership Quarterly, 25*(3), 512–527. <https://doi.org/10.1016/j.leaqua.2013.11.010>
- Kafetsios, K. G., & Gruda, D. (2018). Interdependent followers prefer avoidant leaders: Followers' cultural orientation moderates leaders' avoidance relationships with followers' work outcomes. *Frontiers in Communication, 3*, 9.
- Karanatsiou, D., Sermpezis, P., Gruda, D., Kafetsios, K., Dimitriadis, I., & Vakali, A. (2022). My tweets bring all the traits to the yard: Predicting personality and relational traits in Online Social Networks. *ACM Transactions on the Web (TWEB), 16*(2), 1–26.
- Keller, T. (2003). Parental images as a guide to leadership sensemaking: An attachment perspective on implicit leadership theories. *The Leadership Quarterly, 14*(2), 141–160. [https://doi.org/10.1016/s1048-9843\(03\)00007-9](https://doi.org/10.1016/s1048-9843(03)00007-9)
- Kenny, D. A., & Lavoie, L. (1984). The social-relations model. In , Vol. 18. *Advances in experimental social psychology* (pp. 141–182). <Go to ISI>://WOS: A1984AAJ5000004.
- Klein, K. J., Ziegert, J. C., Knight, A. P., & Xiao, Y. (2006). Dynamic delegation: Shared, hierarchical, and deindividualized leadership in extreme action teams. *Administrative Science Quarterly, 51*, 590–621.
- Liu, S., Jiang, K., Chen, J., Pan, J., & Lin, X. (2018). Linking employee boundary spanning behavior to task performance: The influence of informal leader emergence and group power distance. *The International Journal of Human Resource Management, 29*(12), 1879–1899.
- Lord, R. G., De Vader, C. L., & Alliger, G. M. (1986). A meta-analysis of the relation between personality traits and leadership perceptions: An application of validity generalization procedures. *Journal of Applied Psychology, 71*(3), 402–410.
- Mannion, R., & Thompson, C. (2014). Systematic biases in group decision-making: Implications for patient safety. *International Journal of Quality in Health Care, 26*, 606–612. <https://doi.org/10.1093/intqhc/mzu083>. PMID: 25320152.
- Marchiondo, L. A., Myers, C. G., & Kopelman, S. (2015). The relational nature of leadership identity construction: How and when it influences perceived leadership and decision-making. *The Leadership Quarterly, 26*(5), 892–908. <https://doi.org/10.1016/j.leaqua.2015.06.006>
- McCleskey, J., & Gruda, D. (2020). Risk-taking, resilience, and state anxiety during the COVID-19 pandemic: A coming of (old) age story. *Personality and Individual Differences, 170*, 1–6, 110485.
- Mickelson, K. D., Kessler, R. C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology, 73*(5), 1092.
- Mikulincer, M., & Shaver, P. R. (2005). Attachment theory and emotions in close relationships: Exploring the attachment-related dynamics of emotional reactions to relational events. *Personal Relationships, 12*(2), 149–168.
- Mikulincer, M., & Shaver, P. R. (2018). *Attachment theory as a framework for studying relationship dynamics and functioning*.
- Mirsky, R., Carlucho, I., Rahman, A., Fosong, E., Macke, W., Sridharan, M., Stone, P., & Albrecht, S. V. (2022). *A survey of ad hoc teamwork: Definitions, methods, and open problems*. arXiv preprint arXiv:2202.10450.
- Rabe-Hesketh, S., & Skrondal, A. (2008). *Multilevel and longitudinal modeling using Stata*. STATA press.
- Ramos, K., & Lopez, F. G. (2018). Attachment security and career adaptability as predictors of subjective well-being among career transitioners. *Journal of Vocational Behavior, 104*, 72–85.
- Reitan, T., & Stenberg, S.-Å. (2019). From classroom to conscription. Leadership emergence in childhood and early adulthood. *The Leadership Quarterly, 30*(3), 298–319.
- Richards, D. A., & Hackett, R. D. (2012). Attachment and emotion regulation: Compensatory interactions and leader-member exchange. *The Leadership Quarterly, 23*(4), 686–701. <https://doi.org/10.1016/j.leaqua.2012.03.005>
- Richards, D. A., & Schat, A. C. (2011). Attachment at (not to) work: Applying attachment theory to explain individual behavior in organizations. *Journal of Applied Psychology, 96*(1), 169–182. <https://doi.org/10.1037/a0020372>
- Rom, E., & Mikulincer, M. (2003). Attachment theory and group processes: The association between attachment style and group-related representations, goals, memories, and functioning. *Journal of Personality and Social Psychology, 84*(6), 1220–1235. <https://doi.org/10.1037/0022-3514.84.6.1220>
- Sakman, E., & Sümer, N. (2018). Attachment (in) security and threat priming influence signal detection performance. *Journal of Social and Personal Relationships, 35*(6), 889–916.
- Thomas, G., Martin, R., Epitropaki, O., Guillaume, Y., & Lee, A. (2013). Social cognition in leader-follower relationships: Applying insights from relationship science to understanding relationship-based approaches to leadership. *Journal of Organizational Behavior, 34*(S1), S63–S81.
- Thompson, R. A. (2008). Attachment-related mental representations: Introduction to the special issue. *Attachment & Human Development, 10*(4), 347–358.
- Tsai, C.-Y., Dionne, S. D., Wang, A.-C., Spain, S. M., Yammarino, F. J., & Cheng, B.-S. (2017). Effects of relational schema congruence on leader-member exchange. *The Leadership Quarterly, 28*(2), 268–284.
- Vernon, P. A. (1993). Der zahlen-verbundungs-test and other trail-making correlates of general intelligence. *Personality and Individual Differences, 14*(1), 35–40.
- White, B. A. A., Eklund, A., McNeal, T., Hochhalter, A., & Arroliga, A. C. (2018). *Facilitators and barriers to ad hoc team performance*. Baylor University Medical Center Proceedings.
- Yang, Y., Wang, Y., Lu, H., & Tan, L. (2020). Too insecure to be a leader: The role of attachment in leadership emergence. *Frontiers in Psychology, 11*.
- Yip, J., Ehrhardt, K., Black, H., & Walker, D. O. (2018). Attachment theory at work: A review and directions for future research. *Journal of Organizational Behavior, 39*(2), 185–198.
- Zaccaro, S. J., Green, J. P., Dubrow, S., & Kolze, M. (2018). Leader individual differences, situational parameters, and leadership outcomes: A comprehensive review and integration. *The Leadership Quarterly, 29*(1), 2–43. <https://doi.org/10.1016/j.leaqua.2017.10.003>
- Zhang, Z., Waldman, D. A., & Wang, Z. (2012). A multilevel investigation of leader-member exchange, informal leader emergence, and individual and team performance. *Personnel Psychology, 65*(1), 49–78.