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**Lay Theories of Heroism and Leadership:
The Role of Gender, Communion, and Agency**

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Author Contributions

CH, SA, AB, and AS contributed to the conception and design of the studies as well as data collection; CH performed the statistical analysis; CH and SA wrote and revised the manuscript.

Abstract

Whereas leadership is generally perceived as a masculine enterprise, heroism research suggests that people view heroes as similarly masculine, but having more feminine traits. We predicted that heroes will be evaluated higher than leaders in communion but not differ in agency. In Study 1, heroes were perceived to have higher communion and similarly high agency as leaders. In Studies 2 and 3 we replicated these trait ratings focusing on perceptions of *typical* heroes/leaders (S2) and *personal* heroes/leaders (S3). In Study 4, we showed that the greater level of communion associated with heroes is independent of their gender. In Study 5, using an implicit association test, we showed there is a stronger implicit association of communion with heroes than leaders.

Keywords: Heroism, Leadership, Gender, Communion, Agency, Lay theories

Lay Theories of Heroism and Leadership: The Role of Gender, Communion, and Agency

During the 1960s, a Hollywood actor named Ronald Reagan emerged on the political scene in California. He had no political credentials, but he did exemplify many Americans' beliefs about the core attributes of effective leadership. Reagan was white, male, tall, and sported impeccable dark hair that belied his age. Known as "the great communicator," he spoke with unflagging optimism about restoring American values of self-reliance, hardiness, and small government. Everything in his manner exuded self-confidence, and he addressed his audiences with a warm smile and a twinkle in his eyes. Ronald Reagan appealed to Americans because he preached the cultivation of agentic qualities of individualism, self-reliance, and toughness. Tapping into people's expectations for great leadership, in addition to being a white male, Reagan's look, demeanor, and campaign promises ticked all the boxes. These expectations about the traits and behaviors of an ideal leader have been called lay, or implicit, theories of leadership (Forsyth & Nye, 2008; Martinko et al., 2018) and these lay theories are incredibly important for who people choose to follow and how they evaluate their leaders.

The goal of the current set of studies is to shed light not only on lay leadership theories, but also on leadership's close exceptional cousin, heroism. Acquiring an understanding of lay leadership theories is important because they determine how people choose, evaluate, and possibly replace their leaders (Hoyt & Simon, 2017). As heroism science is a much younger field than the study of leadership, far less is known about lay heroism theories. Yet the same principle applies; lay theories of heroism should also affect our preferences for heroes and our decision whether to retain them or abandon them when they fail to meet our standards. In short, lay theories are worthy of investigation because of overwhelming evidence that cognitions about any social target predicts evaluations of and behavior directed toward that target (Fiske & Taylor,

2013; Moreland & Levine, 2006). For example, Nye and Forsyth (1991) observed that followers' lay leadership theories and leaders' behavior may not always match, and that the misalignment of lay beliefs and leader behavior led to lower evaluations of the leader. A similar process may account for people's tendency to desert heroes who fail to meet their expectations. In addition, our mental conceptions of heroes may influence behavior insofar as heroes serve as role models that motivate us and guide both our actions and life direction (Dik, Shimizu, & O'Connor, 2017).

To our knowledge, little research has explored the relationship between heroism and leadership, and between lay theories of heroism and leadership. We unpack these issues by focusing on the conceptual distinction with a long history in the field of leadership: *communion* versus *agency* (Carli & Eagly, 2001). Communal traits are stereotypically associated with femininity and include attributes such as warmth, compassion, and nurturance. In contrast, agentic traits are stereotypically associated with masculinity and include qualities such as independence, dominance, and self-sufficiency (Bem, 1974). These dimensions, often denoted as warmth and competence or liking and respecting, are fundamental and universal dimensions on which people form impressions of and characterize others (Fiske, Cuddy, & Glick, 2007). And of these two trait dimensions, generally, warmth has been shown to hold primacy in social perceptions (Fiske, et al., 2007). Though communion can be meaningfully differentiated into the highly related constructs of warmth (or sociability) and morality (Abele, Hauke, Peters, Louvet, Szymkow, & Duan, 2016; Brambilla & Leach, 2014; Leach, Ellemers, & Barreto, 2007), in this work we focus on the warmth dimension of communion because the majority of the work looking at lay theories of leadership are focused on perceptions of these warmth-oriented communal traits (Koenig, Eagly, Mitchell, & Ristikari, 2011).

Ample research has shown that people tend to associate leadership with agentic traits more than with communal traits (Hoyt & Goethals, 2017) and the default image of a leader being that of a man rather than a woman (Hoyt, 2010). Lay theories of leadership are highly gendered and are still dominated by the stereotypes that “women take care” and “men take charge” (Dodge, Gilroy, & Fenzel, 1995; Eagly & Van Engen, 2017; Heilman, 2001; Hoyt & Murphy, 2016). A meta-analysis conducted by Koenig, Eagly, Mitchell, and Ristikari (2011) revealed that the qualities people use to describe leaders are stereotypically masculine. People stereotype women as having communal characteristics that emphasize a concern for others, whereas men are believed to possess agentic characteristics that underscore confidence, self-reliance, and dominance (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Deaux & Kite, 1993; Eagly, Wood, & Diekmann, 2000; Williams & Best, 1990). Research has shown that these implicit beliefs are activated automatically, and their subtle expression makes them particularly damaging to women’s chances at attaining leadership and succeeding at leadership (Dunning & Sherman, 1997; Rudman & Glick, 2001). Studies have also shown that people tend to attribute less competence, influence, and leadership to women than they do men in mixed-sex groupings (Heilman & Haynes, 2005).

Do people also associate heroism primarily with agency? In support of this idea is the stereotype of heroism as requiring strong, brave, risky behavior (Kinsella, Ritchie, & Igou, 2017). At the same time, another central component of the heroism stereotype are the heroic behaviors of helping others and caring for people – activities that are far more communal than agentic in nature (Le et al., 2012). These conflicting ideas associated with heroism and research that has begun to tap into people’s lay theories of heroism suggest that, unlike leadership, heroism may be viewed as capturing elements of agency and communion to a roughly equal

degree (Bem, 1974). For example, Gash and Conway's (1997) work asking children to identify the traits of their preferred hero characters in stories, Sullivan and Venter's (2010) research asking participants to identify one of their heroes and to explain what made them a hero, and Kinsella, Ritchie, and Igou's (2015) work asking for open-ended descriptions of the characteristics of heroes all result in lists of traits reflecting a blend of communal and agentic qualities. Kinsella et al. (2017; p. 7) have speculated that "it appears that the concept of a hero is flexible enough to accommodate both stereotypically masculine and feminine hero exemplars." Consistent with this idea, Becker and Eagly (2004; p. 166) noted that "if heroism requires both risk taking and the behavioral expression of concern for others, it might be reasonable to expect that heroic behavior is supremely androgynous," that is, capturing elements of both masculinity and femininity. Our studies reported here represent the first empirical effort to test for this possibility. We do so by examining the role of gender, communion, and agency in comparing people's lay theories of heroism and leadership.

Overview of Present Research

The studies reported here represent the first empirical efforts aimed at examining lay theories of heroism through a framework of communion and agency and comparing these lay theories with those of leadership. We describe the results of five studies exploring the role of gender, communion, and agency in people's lay theories. Whereas past research has revealed that leadership is perceived as a masculine enterprise, research on heroism suggests that people view heroes as possessing both masculine and feminine characteristics (Allison & Goethals, 2011; Kinsella et al., 2015, 2017). These conflicting ideas associated with heroism suggest that, unlike leadership, heroism may capture greater elements of communion than leadership. In this work we take a variety of approaches to testing this proposition. For example, we examined trait

evaluations of single categories, such as females, males, heroes, or leaders, as well as combined categories such as female heroes, or male leaders. We explored both simplified and more elaborate mental representations by assessing both trait evaluations of *typical* heroes and leaders, or prototypes, as well as evaluations of leaders and heroes in people's own lives, or their exemplars. In addition, to the extent heroes are seen to have higher levels of communion, a trait more associated with women than men, we explored the gender of individuals people bring to mind when thinking of heroes and leaders. And finally, we investigated whether these intuitive beliefs are also held at an implicit level outside of conscious awareness.

In sum, in this research we empirically examine whether lay conceptions of heroes are associated with greater levels of communion than those of leaders across five studies. Specifically, in Study 1, we test the predictions that evaluations of heroes will be higher in perceived communion than evaluations of leaders and we also seek to confirm that people evaluate women and men in stereotype consistent ways. In Studies 2 and 3 we seek to replicate these trait ratings of heroes and leaders, focusing on perceptions of *typical* heroes and leaders in Study 2 and *personal* heroes and leaders in Study 3. We also seek to answer the question of whether people think of more female exemplars when asked about the category of hero relative to leader. In Study 4, we assess perceptions of male and female heroes and leaders to test the prediction that the greater levels of communion associated with heroes relative to leaders would hold across perceptions of both women and men. Finally, in Study 5 we tested the prediction that there is a stronger implicit association of communion with heroes than with leaders.

Study 1

In Study 1 we asked participants to rate four social groups in terms of communion and agency: a typical female, a typical male, a typical leader, and a typical hero. We first examine

whether people evaluate a typical female and a typical male in gender-stereotype consistent ways with women evaluated as more communal and less agentic than men. Next, we test the prediction that people evaluate heroes as more communal than they do leaders. We do not predict any difference in evaluations of heroes' and leaders' agency.

Method

Participants. We recruited participants from Amazon's Mechanical Turk to voluntarily participate in the study¹ (Buhrmester, Kwang, & Gosling, 2011; Weinberg, Freese, & McElhattan, 2014). One hundred thirty-seven participants completed the study (53.3% male, 44.5% female, .7% other; mean age = 34.75).

Procedure and manipulations. Participants were asked to rate a typical female, a typical male, a typical hero, and a typical leader on a list of 20 traits using a 7-point scale, ranging from 1 (not characteristic) to 7 (characteristic) with a neutral rating of 4 (neither characteristic nor uncharacteristic). The order in which they made these ratings was randomized.

Measure of communal and agentic traits. In this research we use the Bem Sex Role Inventory short-form (Bem, 1974; 1981) to assess perceptions of communion and agency. The BSRI is the foundational framework undergirding the study of gender stereotypical personality traits in psychology; this highly reliable and well-validated measure assesses the two broad dimensions of femininity and masculinity, alternatively referred to as communion and agency (Wood & Eagly, 2015). The BSRI assesses traits that are both desirable and are stereotypical of either women or men (Wood & Eagly, 2015). We chose to use the short form both to ease data

¹ For all five studies in this paper, we determined minimum ballpark sample sizes before collecting data. Using a very conservative approach, we used G*power to determine minimum sample sizes assuming the social group variable was independent although all designs are fully within participants. No a priori estimate was above 80. Across all studies our obtained sample size was larger than the conservative a priori estimates for 80% power with an alpha level of .05.

collection and because it has been shown to be a more reliable measure of gender roles than the full BSRI (Campbell, Gillaspay, & Thompson, 1997). Participants rated the target on the following ten communal traits: affectionate, sensitive to the needs of others, loves children, understanding, sympathetic, eager to soothe feelings, compassionate, gentle, warm, and tender and on the following ten agentic traits: aggressive, willing to take a stand, independent, defends own beliefs, leadership ability, assertive, willing to take risks, forceful, dominant, and strong personality.

Results and Discussion

We computed average ratings of communion and agency for each of the four social groups. Table 1 presents the scale reliabilities, means, standard deviations, and intercorrelations for the study variables. The data and syntax files for all studies are accessible through the OSF (<https://osf.io/f6bq5/>).

First, we conducted a 2 (traits: communal or agentic) by 4 (social group: women, men, heroes, leaders) within-subjects ANOVA. Mauchly's test of sphericity indicate that the assumption of sphericity had been violated for both social group ($\chi^2(5) = 16.90, p = .005$) and the interaction ($\chi^2(5) = 55.81, p < .001$) therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity. There were significant main effects for both traits ($F(1, 136) = 129.67, p < .001, \eta^2 = .49$) and for social group ($F(2.80, 380.28) = 102.38, p < .001, \eta^2 = .43$) and a significant two-way interaction between traits and social group ($F(2.31, 314.36) = 179.34, p < .001, \eta^2 = .56$).

Next, we examine pairwise comparisons to test our hypotheses (see Figure 1). First, our results support gender stereotype-based research; specifically, they reveal that when evaluating "a typical female" people rate them significantly higher on communal traits ($M = 5.64, SD = .82$)

than they do “a typical male” ($M = 3.82$, $SD = .93$; $p < .001$, 95% CI [1.60, 2.03]) and they rate females lower on agency ($M = 4.16$, $SD = .90$) than they do males ($M = 5.29$, $SD = .84$; $p < .001$, 95% CI [-1.34, -.92]). Next, as predicted, heroes are rated significantly higher on communion ($M = 5.09$, $SD = 1.00$) than leaders ($M = 4.25$, $SD = 1.05$; $p < .001$, 95% CI [.65, 1.04]). There was no significant difference between heroes ($M = 5.89$, $SD = .78$) and leaders ($M = 5.82$, $SD = .77$; $p = .214$, 95% CI [-.04, .18]) on ratings of agency. Finally, we note that this is the only pairwise comparison that is not significant; pairwise comparisons of all other means (see Figure 1) are significant at the $p < .001$ level. Finally, analyses including participant gender as a between-subjects factor (selecting those identifying as female or male) revealed no main ($p = .164$) or interactive effects ($ps > .23$) of participant gender.

In sum, our findings support the predictions. Consistent with a robust gender stereotyping literature, participants rated a typical female as more communal and less agentic than a typical male. Importantly, heroes were rated as significantly higher in communion than leaders. The means and pairwise comparisons reveal that participants envision a typical leader to have significantly higher levels of agency than communion, similar to the pattern shown when rating a typical male. This alliance between the perceived traits of typical leaders and typical men give rise to preferences for men as leaders (Eagly & Karau, 2002). These strong associations between men and leadership are evident in the predominantly male exemplars brought to mind when people think of a leader (Murphy, 2018). Thus, given our findings that heroes are seen to have significantly higher levels of communion, is the category of hero more aligned with women than the category of leader? In the next study we explore whether people bring to mind women more often when thinking of heroes than when thinking of leaders.

Study 2

The primary goals of Study 2 were to replicate the trait evaluations of heroes and leaders found in Study 1 and to investigate if there are differences in the gender of exemplars brought to mind when answering questions about a typical hero relative to a typical leader.

Method

Participants. We recruited participants from Amazon's Mechanical Turk, with ninety-nine individuals completing the study (63.6% male, 35.4% female, 1% other; mean age = 33.73).

Procedure and manipulations. Procedures for Study 2 were similar to Study 1 except that participants were only asked to rate a typical hero and a typical leader on the list of 20 traits. Additionally, after responding to the characteristics, they were asked to list one or more people they had in mind while answering the questions. The order in which they made these ratings for heroes and leaders was randomized.

Measures. Participants responded to the same 20 traits using the same 7-point scale, ranging from 1 (not characteristic) to 7 (characteristic) used in Study 1. Participants' responses to the open-ended question about who they had in mind when answering the questions were coded in terms of gender: female, male, or unspecified.

Results and Discussion

Table 1 presents the scale reliabilities, means, standard deviations, and intercorrelations for the study variables.

First, we conducted a 2 (traits: communal or agentic) by 2 (social group: heroes, leaders) within-subjects ANOVA. There were significant main effects for both traits ($F(1, 98) = 38.82, p < .001, \eta^2 = .28$) and for social group ($F(1, 98) = 13.66, p < .001, \eta^2 = .12$) and a two-way interaction between traits and social group ($F(1, 98) = 21.88, p < .001, \eta^2 = .18$; see Figure 2).

Next, pairwise comparisons once again support the hypothesis that heroes are rated significantly higher on communion ($M = 5.24$, $SD = .86$) than leaders ($M = 4.71$, $SD = 1.11$; $p < .001$, 95% CI [.31, .74]). On ratings of agency, there was no significant difference between heroes ($M = 5.59$, $SD = .81$) and leaders ($M = 5.69$, $SD = .73$; $p = .121$, 95% CI [-.03, .23]). Once again, this is the only pairwise comparison that is not significant; pairwise comparisons of all other means (see Figure 2) are significant at the $p < .01$ level. Finally, analyses including participant gender as a between-subjects factor (selecting those identifying as female or male) revealed no main ($p = .959$) or interactive effects ($ps > .38$) of participant gender.

Next, to explore whether participants bring to mind more female hero exemplars relative to female leader exemplars, we examined the gender of the exemplar hero and leader they brought to mind while answering the trait questions. As can be seen in Figure 3, people are predominantly reporting exemplars, both hero and leader, that are male. Indeed, for both heroes and leaders, more people report individuals with an unspecified gender, than individuals who are clearly and identifiably female. To determine if the proportion of males and females identified differed significantly depending on whether participants were identifying a hero or a leader, we computed related samples McNemar tests. Because the identified individuals were categorized into one of three categories, we computed two separate McNemar's test to test if there was a significant difference in identifying a male or not (combined female or unspecified) or if there was a difference in identifying a female or not (combined male or unspecified) depending on whether they were identifying hero or leader. These nonparametric tests were not significant ($p = .134$ and $p = .454$, respectively) indicating that the likelihood of identifying a male or a female exemplar did not significantly differ depending on whether participants were thinking of a hero or a leader.

In sum, once again we found that participants rated heroes higher on communal traits than leaders and we found no evidence that they rated heroes and leaders differently on agentic traits. However, our exploration of the gender of participants' exemplars failed to support the argument that people are bringing to mind more women when thinking of heroes than when thinking of leaders. These findings suggest there is a disconnect between identifying heroes as more communal but failing to identify more female hero exemplars. In the next study, we seek to replicate these findings when examining people's personal heroes and leaders.

Study 3

The first two studies asked participants to evaluate the traits of *typical* heroes and leaders. That is, we assessed trait evaluations of abstract, general representations, or prototypes, of these social categories (Guillén, Mayo, & Korotov, 2015). In Study 3, we sought to examine participants' trait evaluations of the leaders and heroes in their own personal lives, or their exemplars. Whereas prototypes offer simplified mental representations, exemplars provide for a more rich and elaborate representation. Given that we saw in Study 2 that people overwhelmingly brought to mind male exemplars for both leaders and heroes, would participants' trait evaluations of these (more often male) hero exemplars show a similar pattern to that observed in the first two studies? In Study 3, our goal was to replicate findings that people conceive of heroes in more communal terms than they do leaders by examining ratings of people's exemplars. Once again, we predicted that participants would rate heroes significantly higher than leaders in terms of communion and we do not predict any difference in ratings of agency.

Method

Participants. We recruited participants from Amazon's Mechanical Turk, with one hundred forty-four individuals completing the study (55.6% male, 44.4% female; mean age = 35.92).

Procedure. Participants were asked to identify three important heroes and three important leaders in their life and to write their full name. For each individual they identified, they were asked to list three characteristics that describe them and then they rated them on agency and communion. The order in which they made these ratings for heroes and leaders was randomized.

Measures. Participants responded to the same 20 traits using the same 7-point scale, ranging from 1 (not characteristic) to 7 (characteristic) used in Study 1. Participants rated each of the three heroes and each of the three leaders on the agentic and communal traits. An agency and communion score was computed for each hero and leader (all were highly reliable, $\alpha \geq .88$). We then computed overall trait scores (agentic and communal) for both heroes and leaders by averaging their ratings across all three individuals they rated. Participants' responses to the open-ended question about who they had in mind when answering the questions were coded in terms of gender: female, male, or unspecified. Finally, participants' responses to the characteristics that describe the heroes and leaders were coded as agentic, communal, or other.

Results and Discussion

Table 1 presents the scale reliabilities, means, standard deviations, and intercorrelations for the study variables.

First, we conducted a 2 (traits: communal or agentic) by 2 (social group: heroes, leaders) within-subjects ANOVA. There were no significant main effects for either traits ($p = .647$) or

social group ($p = .155$). However, there was a significant two-way interaction between traits and social group ($F(1, 143) = 4.25, p = .041, \eta^2 = .03$). Pairwise comparisons once again support the hypothesis that heroes are rated significantly higher on communion ($M = 5.47, SD = .88$) than leaders ($M = 5.31, SD = .89; p = .019, 95\% \text{ CI } [.03, .30]$). On ratings of agency, once again there was no significant difference between heroes ($M = 5.35, SD = .83$) and leaders ($M = 5.37, SD = .88; p = .752, 95\% \text{ CI } [-.11, .15]$). In this study, the only pairwise comparison that is significant is the difference between heroes and leaders on ratings of communion. Analyses including participant gender as a between-subjects factor revealed a main effect of participant gender ($F(1, 142) = 8.61, p = .004, \eta^2 = .06$) such that women made more positive ratings overall ($M = 5.50, SD = .76$) compared to men, ($M = 5.27, SD = .95$) and there was an interaction between gender and traits ($F(1, 142) = 4.99, p = .027, \eta^2 = .03$) such that women's scores on communal traits were higher than their scores on agency ($M_{\text{diff}} = .192, SE_{\text{diff}} = .09, p = .039$) whereas men showed a non-significant pattern in the reverse ($M_{\text{diff}} = -.102, SE_{\text{diff}} = .08, p = .219$). Importantly, the interaction between traits and social group remains significant and is not moderated by participant gender.

Next, we examined the gender of the exemplar heroes and exemplar leaders that participants identified. We tallied the proportion of female and male individuals they identified with scores ranging from 0 to 3 for each heroes and leaders. A 2 (gender: female or male) by 2 (social group: heroes, leaders) within-subjects ANOVA revealed a significant main effect for gender ($p < .001$) and no other significant effects ($ps > .41$). As can be seen in Figure 4, people are predominantly reporting exemplars, both hero and leader, that are male. Similar to Study 2, participants are reporting similar numbers of women and men when asked to identify leaders and heroes.

Next, we had two independent raters code the traits that the participants used to describe each of the three heroes and leaders they identified. The traits were coded as communal, agentic (dominance was coded separate from other elements of agency, these were combined into one category of agency), or other. Intraclass correlations between the two raters on assessments of the number of agentic and communal traits for both leaders and heroes indicated adequate interrater reliability (all ICC > .45). We used the average of both raters in analyses. A 2 (traits: communal or agentic) by 2 (social group: heroes, leaders) within-subjects ANOVA revealed no significant main effects ($ps > .78$) and no significant interaction between traits and social group ($p = .137$). Analyses including participant gender as a between-subjects factor revealed no main ($p = .565$) or interactive effects ($ps > .07$) of participant gender.

In sum, findings from the trait ratings replicate the first two studies by showing that people rate heroes as higher on communion than leaders and there was no evidence for differences in ratings of agency. Additionally, this study replicates Study 2 in that the exemplars that people bring to mind are predominantly male and do not differ across heroes and leaders. Finally, in this study we did not support the prediction that participants would bring to mind more communal traits for heroes relative to leaders. Why do people rate heroes as more communal than leaders but they do not generate traits of heroes that are more communal? It is possible that the two tasks of evaluating traits and generating traits involve different psychological mechanisms, with the latter implicating deeper, more attribute-based processing and the former more superficial, categorical-based processing (Bodenhausen, Macrae, & Sherman, 1999). Judgments involving the recognition of social categories have been shown to be activated automatically, within milliseconds (Chaiken & Trope, 1999). In contrast, the task of generating traits requires relatively more cognitive work, a process described by Fiske and

Neuberg (1990) as “piecemeal” efforts to construct an impression of a social category. These two mechanisms, one automatic and the other less so, could yield different impressions.

Study 4

In Study 4, we sought to test the prediction that the greater levels of communion associated with heroes relative to leaders would hold across perceptions of both women and men. Thus, in this study we asked participants to evaluate the traits of typical female heroes, female leaders, male heroes, and male leaders. We predicted that, replicating findings from Study 1, the female targets will be evaluated in gender-stereotype consistent ways with women evaluated as more communal and less agentic than men. We also predicted that participants will rate heroes as higher in communion than leaders. We did not expect the higher association of communal traits with heroes to be moderated by gender.

Method

Participants. We recruited participants from Amazon’s Mechanical Turk, with one hundred forty-nine individuals completing the study (56.4% male, 41.6% female, .7% other; mean age = 37.33).

Procedure. Procedures for Study 4 were similar to Study 1 except that participants were asked to rate a typical female hero, female leader, male hero, and male leader on the list of 20 traits. Once again, the order in which they made these ratings was randomized.

Measures. Participants responded to the same 20 traits using the same 7-point scale, ranging from 1 (not characteristic) to 7 (characteristic) used in the other studies. Participants rated each of the four categories on the agentic and communal traits. An agency and communion score was computed for each and all were highly reliable (all alphas \geq .88).

Results and Discussion

Table 1 presents the scale reliabilities, means, standard deviations, and intercorrelations for the study variables.

First, we conducted a 2 (traits: communal or agentic) by 2 (social group: heroes, leaders) by 2 (gender: female or male) within-subjects ANOVA (see Figure 5). There were significant main effects for traits ($F(1, 148) = 98.04, p < .001, \eta^2 = .40$), social group ($F(1, 148) = 57.85, p < .001, \eta^2 = .28$) and for gender ($F(1, 148) = 30.25, p < .001, \eta^2 = .17$). Overall, participants rated the targets more highly on agentic traits than communal traits, they rated heroes higher on the traits than leaders, and they rated female targets more highly than male targets.

To test the predictions, we examined the interaction effects. First, we turn to the prediction that women will be rated higher on communal traits and lower on agentic traits than men. There was a significant two-way interaction between traits and gender ($F(1, 148) = 94.72, p < .001, \eta^2 = .39$). Pairwise comparison tests reveal that on communal traits, participants rate women ($M = 5.10$) higher than men ($M = 4.36; p < .001, 95\% \text{ CI } [.59, .90]$) and on agentic traits they rate women ($M = 5.38$) lower than men ($M = 5.79; p < .001, 95\% \text{ CI } [-.51, -.31]$).

Next, we turn to our primary prediction that heroes are rated higher on communal traits than leaders. There was a significant two-way interaction between traits and social group ($F(1, 148) = 23.90, p < .001, \eta^2 = .14$). Pairwise comparison tests once again reveal that participants rate heroes as significantly more communal ($M = 4.98$) than leaders ($M = 4.48; p < .001, 95\% \text{ CI } [.38, .63]$) and there is no significant difference in ratings of heroes ($M = 5.61$) and leaders on agentic traits ($M = 5.56; p = .289, 95\% \text{ CI } [-.05, .16]$). Finally, there was no significant three-way interaction between gender, traits and social group ($F(1, 148) = .061, p = .806, \eta^2 = .00$). Thus, there was no evidence that the pattern of rating heroes as more communal than leaders

differed across ratings of women and men. Finally, analyses including participant gender as a between-subjects factor (selecting those identifying as female or male) revealed no main effect of participant gender and all significant interactions remained significant and were not moderated by participant gender. There was an interaction between participant gender and social group ($F(1, 144) = 6.83, p = .010, \eta^2 = .05$) such that women's scores were (nonsignificantly) higher for heroes ($M_{\text{diff}} = .141, SE_{\text{diff}} = .12, p = .223$) and (nonsignificantly) lower for leaders ($M_{\text{diff}} = -.044, SE_{\text{diff}} = .11, p = .680$) compared to men's ratings.

In sum, using a different methodological approach by combining gender and hero/leader social groups, we replicate and extend findings from the first three studies by showing that participants rate women as more communal and less agentic than men (across ratings of heroes and leaders) and they rate heroes as higher in communion but not different in agency relative to leaders (across ratings of women and men). Finally, we found no evidence that the pattern of associating greater communion with heroes, relative to leaders, is moderated by the gender of the hero or leader. This fourth study makes clear that the finding that heroes are generally perceived in more communal terms than leaders is robust across methodological approaches and it holds across the gender of leaders and heroes. In our final study, we examine if the stronger association of communal traits with heroes relative to leaders can be evidenced using a measure of implicit associations.

Study 5: Implicit Association Test

If people more strongly associate heroes with communal traits than they do leaders, we should be able to detect that association using an implicit association test (IAT; Greenwald et al, 1998). The IAT assesses the extent to which attitude objects, such as leaders or heroes, are associated with certain attributes, such as communal or agentic traits. For example, previous

research using the IAT has shown that generally people more strongly associate women with the category of supporter than the category of leader (Dasgupta & Asgari, 2004). In this final study, we predict that people will have stronger implicit associations between the category of hero and communal traits, than the category of leader and communal traits.

Method

Participants. We recruited participants from Amazon's Mechanical Turk, with ninety-nine individuals completing the study through the demographics (52.5% male, 46.5% female; median age = 33.62).

Procedure and Measures. We employed a modified version of the implicit association test (Greenwald et al, 1998) to examine the mental associations between the categories of hero and leader and traits associated with communion and agency. The IAT is a relative measure, allowing us to examine which category, hero or leader, is implicitly seen as more communal/agenic. We used iatgen (Carpenter et al., 2018; Pogacar, Carpenter, Shenk, & Kouril, in press) to build and analyze our IAT using a Qualtrics survey. The survey contained seven trials, counterbalancing the left-right starting positions of targets and categories. There were two combined blocks, each presenting both a compatible and an incompatible trial, and three practice trials.

The targets we used were hero and leader, and we used those labels as opposed to terms associated with them. The categories we associated with the targets were communal and agentic traits. Specifically, for the communal traits participants were shown the following words: Empathetic, Loving, Supportive, Loyal, Caring, or Sensitive. For the agentic category the words were: Strong, Independent, Dominant, Risk taker, Competitive, and Powerful. For each trial, participants saw a stimulus on the screen, either the word hero or leader, or one of the communal

or agentic traits. Their job was to sort the stimulus words, using the keys E and I, into one of two combined categories that are displayed on the computer screen, and reaction times were assessed. The logic is that people should be quicker to sort stimuli when the combined categories are more consistent with their mental associations than when they are not. For our study, we expected people to be quicker to sort stimuli when the categories pair hero with communal terms and leader with agentic terms, than when they are paired in the opposite manner. This IAT ran within the web browser and was not reliant on internet connection speed as iatgen uses JavaScript.

Results and Discussion

Analyses examined reaction time in the four combined blocks. Trials over 10,000 ms are scored as missing and participants for whom >10% of their trials are faster than 300ms are scored as missing. A D-score is calculated by taking the difference in average speed per participant using the four trials in the two combined blocks. Each difference score is divided by a pooled SD for that pair of blocks, creating two D-score measures which are then averaged.

Analyses reveal that 98 participants successfully completed the IAT; however, seventeen were dropped due to excessive speed. The error rate, or proportion of trials in which erroneous responses occurred, was .11. The estimated internal consistency of the IAT, based on split half with Spearman-Brown correction, was adequate (.74).

Results revealed a positive association between heroes and communal traits and leaders and agentic traits. The IAT D-score mean was .09 (SD =.35) and this was significantly different from zero ($t(80) = 2.37, p=.020, CI=.01, .17$). A Cohen's D of .26 suggests this is a small effect (Cohen, 1988).

In sum, the implicit association test revealed that there is a modest implicit association between heroes and communion and leaders and agency. Thus, these intuitive beliefs that heroes encompass communion to a greater degree than leaders are both expressed explicitly, as shown in the first four studies, and are also held at an implicit level outside of conscious awareness or control.

General Discussion

Across five studies, we empirically examined lay theories of heroism through a framework of communion and agency and compared these lay theories with those of leadership. Overall, our results support the contention that heroes are generally perceived in more communal terms than leaders. Replicating robust gender stereotypes, we showed that women are perceived to be higher in communion than men and men as higher in agency than women. We showed that perceptions of heroes capture characteristics associated with both women and men. That is, heroes are perceived to have higher levels of communion and similarly high levels of agency relative to leaders. The interaction between social group (hero/leader) and traits was significant across studies, thus robustly showing that participants rate heroes as higher in communion than leaders. And, although there are concerns with inferring a null effect, the consistent findings across the well-powered studies give us confidence that ratings of agency are similar for lay theories of heroes and leaders.

Heroes were associated with greater levels of communion both when asking people's perceptions of *typical* (prototypical) heroes and leaders and when asking about people's *personal* (exemplar) heroes and leaders. However, we found that when people offered their own trait descriptors, they brought to mind similar numbers of agentic and communal traits suggesting that generating traits involves different psychological mechanisms than evaluating traits

(Bodenhausen, Macrae, & Sherman, 1999). When asked to identify exemplars of both categories, people identified men overwhelmingly and the proportion of women exemplars was not greater when people were bringing to mind heroes relative to leaders. Thus, the greater levels of communion associated with the category of hero compared to leader does not appear to be driven by people bringing to mind more women when thinking of heroes. At the same time, the pattern of associating greater communion with heroes, relative to leaders, held across evaluations of women and men. Finally, results from an implicit association test reveal that the category of hero is more strongly, implicitly, associated with communion than the category of leader.

Our research findings make a number of important theoretical contributions. Although there is a robust literature on lay leadership theories (e.g., Forsyth & Nye, 2008; Lord & Maher, 1991), work exploring people's intuitive notions of heroes is still in its early stages. The significant empirical scholarship on lay leadership theories has revealed that lay conceptions of leadership are culturally masculine (Eagly & Carli, 2007; Koenig et al., 2011). Our work here shows that intuitive notions of heroes share similarities and differences with those of leadership. Like lay theories of leaders, hero theories comprise high levels of agency, but these intuitive beliefs about heroes encompass communion to a much greater degree. Thus, lay heroism theories are more androgynous, endorsing both stereotypically feminine (communal) and stereotypically masculine (agentic) traits (Bem, 1974).

The characteristics that people ascribe to heroes and leaders can lead to certain people being more likely, and others much less likely, to be identified as such. One clear idea that emerges from the work on lay leadership theories is that social identities, such as gender, influence who we see as "fitting" the ideal image of a leader. This perceived goodness of fit principle is important because those who do fit the idealized image are evaluated more positively

and are more likely to be selected as leaders (Eagly & Karau, 2002; Lord & Maher, 1991). According to role congruity theory, the conflicting expectations between the female gender role and the leader role can result in biases against women in leadership (Eagly, 2004; Eagly & Karau, 2002; Heilman, 2001). Men, relative to women, are seen as possessing more of the agentic traits that fit with the leadership role (Deaux & Kite, 1993; Eagly, Wood, & Diekmann, 2000; Williams & Best, 1990). In this work we sought to understand whether notions of heroism are similarly gendered.

On the one hand, our findings reveal that the *traits* associated with heroes are more androgynous, with higher levels of communion, than traits associated with leaders. However, we also found that when asked to list exemplars of heroes, participants overwhelmingly identified males, similar to their identification of leader exemplars. We offer four possible explanations for this intriguing finding. First, previous research has shown that people are more likely to identify men than women when thinking of public heroes, those that are widely recognized as heroes, and are equally likely to identify women and men when thinking of heroes who they personally knew (Rankin & Eagly, 2008). Thus, our findings might reflect a general tendency for participants to focus on more widely known heroes who often perform their heroic behaviors in social roles that women have less access to than men (Rankin & Eagly, 2008). Another possibility is that media bias exists in the reporting of heroism such that male heroism makes the news more than female heroism. Examples of male heroes would therefore be more available in memory than examples of female heroes. A third possibility is that because the two mental constructs of heroism and leadership overlap considerably, the male bias in leadership perception may bleed into perceptions of heroism. Still another possibility is that lay theories of men – and of male heroes – contain a psychologically powerful subcategory of men who are nurturant and communal.

Examples of such men include Mr. Rogers, the Pope, the Dalai Lama, Santa Claus, and many father figures. Thus, a lay subcategory of male heroism may exist that exerts an influence on people's accessible exemplars of heroism. We leave it to future research to tease apart these possibilities.

In addition to working to better understand the disconnect between identifying heroes as more communal but failing to identify more female hero exemplars, there are other limitations of this work that could be addressed in future research. Although our measure of communion and agency is a well-validated and reliable measure (Campbell et al., 1997) and in this initial work we were interested in examining the two fundamental dimensions that have served as an integrative framework for various lines of research across areas of psychology (Abele et al., 2016) and map on well to the work on lay theories of leadership (Koenig et al., 2011), there are limitations with this approach to assessing communion and agency. Future work examining questions of lay theories of heroism should build upon our work and take a more nuanced approach by examining the sub-facets of communion by also focusing more directly on morality. Recent research on communion and agency has shown that they each compose two facets, with agency encompassing competence and assertiveness and communion comprising warmth and morality (Abele, Hauke, Peters, Louvet, Szymkow, & Duan, 2016). Indeed, focusing specifically on communion, there is important work demonstrating both the unique role each of the two dimensions, warmth (or sociability) and morality, plays in social judgments as well as the primacy of morality in perceptions of individuals and groups (Brambilla & Leach, 2014; Leach, Ellemers, & Barreto, 2007). The primacy of warmth, or moral, evaluations over judgments of agency has been shown across a number of studies, reflecting "the importance of assessing other people's intentions before determining their ability to carry out those intentions" (Fiske et al.,

2007, p. 79). Moreover, research on heroism by Allison and Goethals (2011) that identified *morality* and *competence* as the two basic dimensions of heroism, suggests that further work exploring these subdimensions, with a particular focus on morality, might prove fruitful.

In addition to making important contributions to the growing field of heroism science, a branch of which is devoted toward understanding how and when people label another individual a hero, our research has important practical implications. Our work highlights the gender inequities not only in who people identify as leaders, but also who they identify as heroes; reliably people bring more men, relative to women, to mind when they think of these categories. However, our research also suggests a path forward to bringing greater gender parity in perceptions of heroes. We might leverage the relatively strong and robust association of heroes with communal traits, those traits that are more strongly associated with women than men, in order to promote a greater celebration of female heroes. Indeed, this association of the positively regarded category of hero (Allison & Goethals, 2011) with both masculine and feminine traits can serve to both blur traditional gender roles and promote the importance of feminine, communal traits (Wood & Eagly, 2015).

Our primary findings that heroes possess high levels of both agentic and communal qualities is consistent with descriptions of some of our greatest male heroes. Mahatma Gandhi was known for both his communal qualities -- forgiveness, love, and nonviolence – and his agentic qualities of strength, resolve, and resilience. Nelson Mandela was a man of goodness, humility, and peace, yet he balanced these qualities with more agentic traits of toughness, power, and grit. Abraham Lincoln was patient, forgiving, generous, yet he was also strong, resilient, and resolute. Female heroes also appear to strike a balance between agency and communion. Named America's most admired woman in 2018, Michelle Obama is sensitive, passionate, and generous,

and at the same time she exudes strength, pragmatism, and toughness. Other female heroes such as Anne Sullivan, Florence Nightingale, and Malala Yousafzai have also been described as high on communal traits such as selflessness and empathy, as well as high on agentic traits such as intelligence, strength, and resilience (Allison & Goethals, 2013). A consideration of these, and other, great heroes brings more questions for future research. Might perceptions of warmth and/or morality feed greater perceptions of agency or vice versa? Is extremity of perceptions on one or both of these dimensions a fundamental driver of perceptions of heroism, and does that differ for female and male heroes?

A study by Frimer, Walker, Dunlop, Lee, and Riches (2011) sheds some light on the interplay of morality, agency, and communion among moral exemplars. These investigators interviewed 25 moral heroes who received national awards for extraordinary volunteerism. Participants' responses were coded for themes of agency and communion. Frimer et al. found that moral heroes had both more agency and communion than did comparison participants. The pattern of results also pointed to the heroes' use of agentic behaviors as a means to achieving a communal end. These results provide the first reliable evidence of the integration of motives of agency and communion in morally heroic individuals. Frimer et al.'s data also point to the possibility that perceivers may conflate morality and agency if one operates in the service of the other. The interplay among morality, agency, and communion would seem to be a fruitful area for future research.

As noted earlier, Kinsella et al. (2015) speculated that the concept of a hero is flexible enough to accommodate both stereotypically masculine and feminine hero characteristics, although they had no data to support their assertion. Our research has shed light on the "flexibility" of this construct, demonstrating that heroism may be a richer, more variegated

construct than that of leadership. Heroism may be said to transcend leadership by mixing high levels of agency and communion, and by using both strength and nurturance to better the human condition (Allison, 2019; Frimer et al., 2012; Goethals & Allison, 2019). We leave it to future scholars to untangle precisely how heroes blend agentic and communal qualities to plan and execute their heroic objectives.

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Table 1
Scale Means, Standard Deviations, and Intercorrelations for Studies

Dependent Variable	Alphas	M	SD	1	2	3	4	5	6	7
STUDY 1										
Communal_female	.94	5.64	.82							
Communal_male	.93	3.82	.93	-.05						
Communal_hero	.93	5.09	1.00	.23**	.28**					
Communal_leaders	.93	4.25	1.05	.12	.45***	.36***				
Agentic_female	.90	4.16	.90	.07	.53***	.48***	.38***			
Agentic_male	.93	5.29	.84	.72***	-.13	.16	.12	.00		
Agentic_hero	.88	5.89	.78	.41***	-.07	.06	.07	.01	.40***	
Agentic_leader	.87	5.82	.77	.46***	-.15	.12	.03	-.03	.48***	.66***
STUDY 2										
Communal_hero	.92	5.24	.86							
Communal_leader	.95	4.71	1.11	.44***						
Agentic_hero	.85	5.59	.81	.11	-.01					
Agentic_leader	.83	5.69	.73	.23*	-.07	.66***				
STUDY 3										
Communal_hero	.92	5.47	.88							
Communal_leader	.94	5.31	.89	.56***						
Agentic_hero	.88	5.35	.83	.38***	.37***					
Agentic_leader	.88	5.37	.88	.41***	.49***	.59***				
STUDY 4										
Comm_fem_hero	.94	5.32	1.01	1	2	3	4	5	6	7

Comm_male_hero	.94	4.65	1.14	.53***						
Comm_fem_lead	.92	4.88	1.00	.65***	.39***					
Comm_male_lead	.95	4.08	1.22	.35***	.64***	.51***				
Agen_fem_hero	.89	5.39	.99	.03	.27**	.03	.18*			
Agen_male_hero	.90	5.84	.89	.25**	.03	.15	.01	.64***		
Agen_fem_lead	.88	5.38	.87	.16*	.18*	-.10	.05	.63***	.62***	
Agen_male_lead	.90	5.74	.85	.40***	.04	.22**	-.10	.40***	.65***	.66***

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

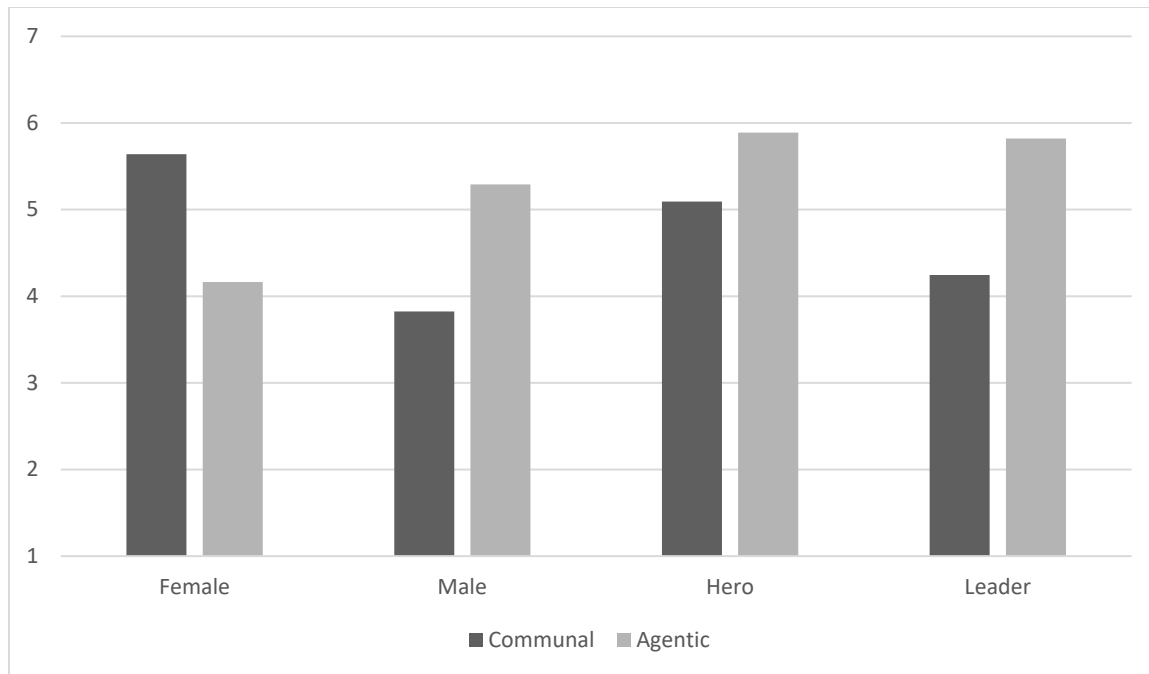


Figure 1. Study 1: Trait evaluations of a typical hero and a typical leader.

Note: Pairwise comparisons of all means are significant at the $p < .001$ level except for the comparison of heroes and leaders on ratings of agency which is not significant ($p = .214$).

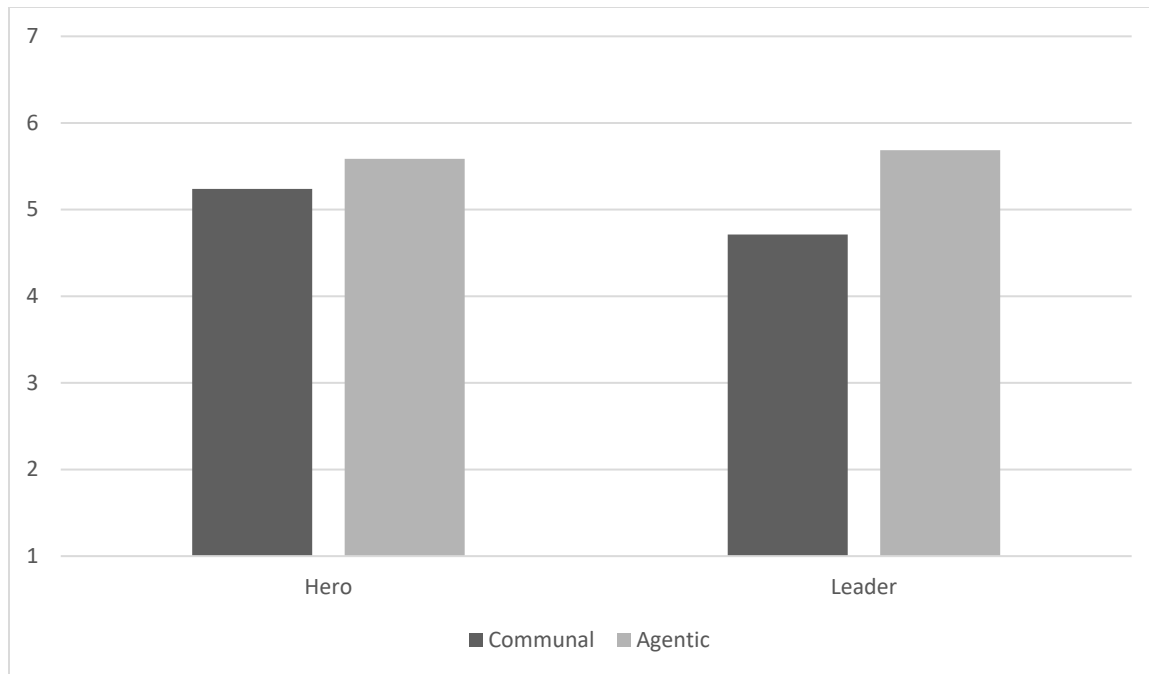


Figure 2. Study 2: Trait evaluations of a typical hero and a typical leader.

Note: Pairwise comparisons of all means are significant at the $p < .01$ level except for the comparison of heroes and leaders on ratings of agency which is not significant ($p = .121$).

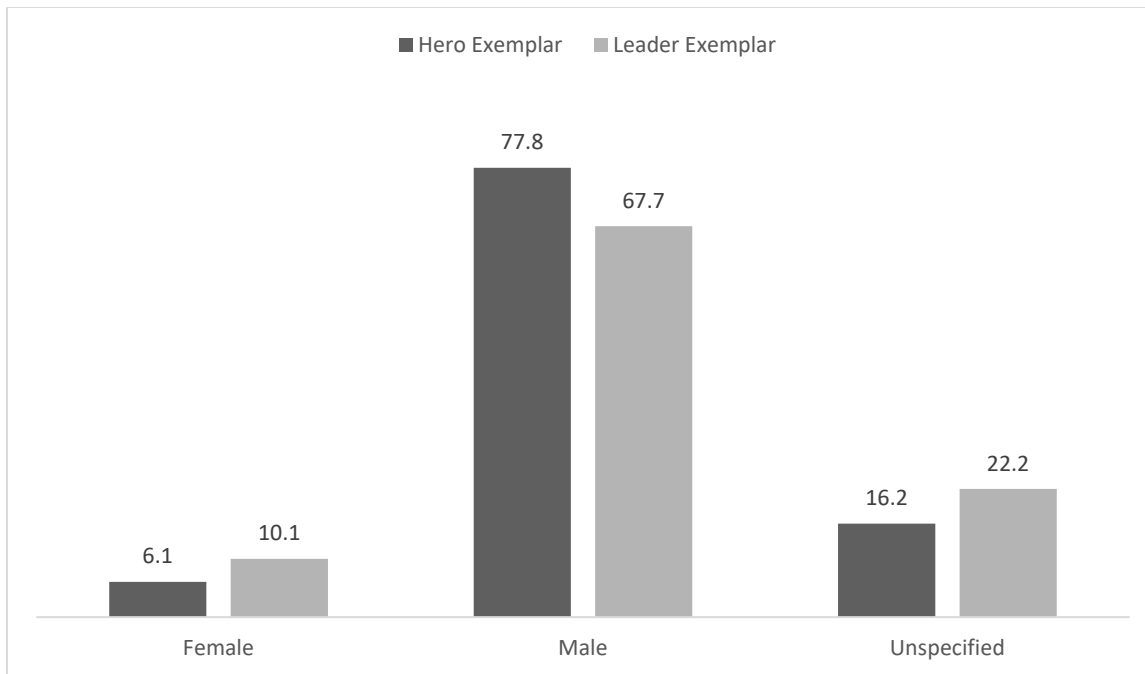


Figure 3. Study 2: Percentages of hero and leader exemplars that are categorized as female, male, or unspecified.

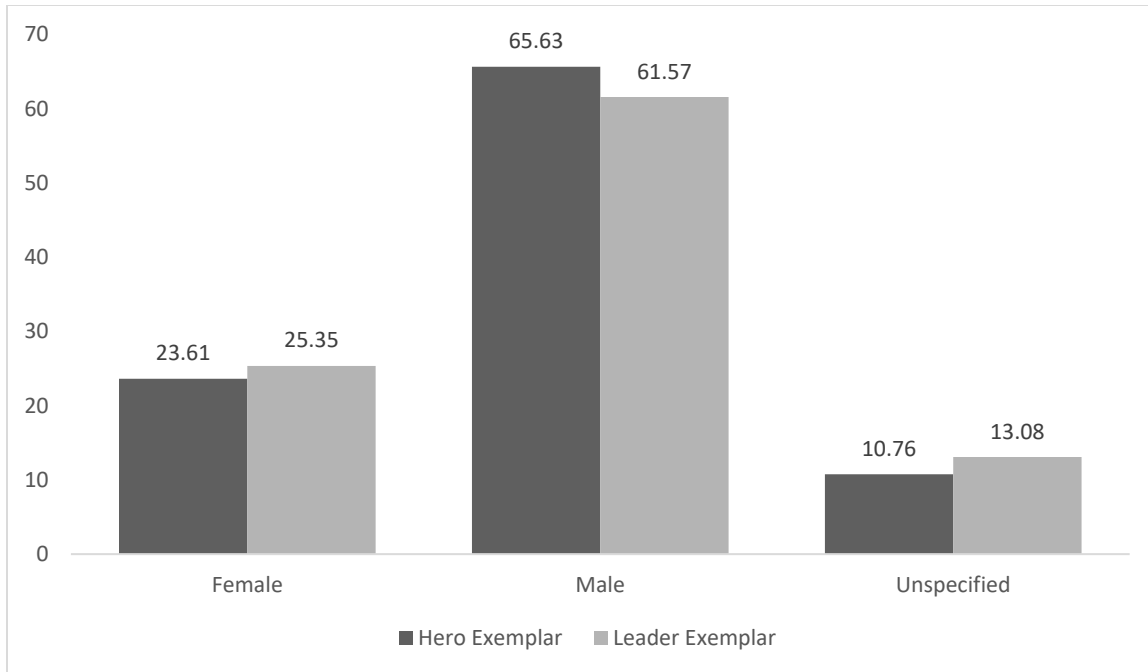


Figure 4: Study 3: Percentage of hero and leader exemplars that are categorized as female, male, or unspecified.

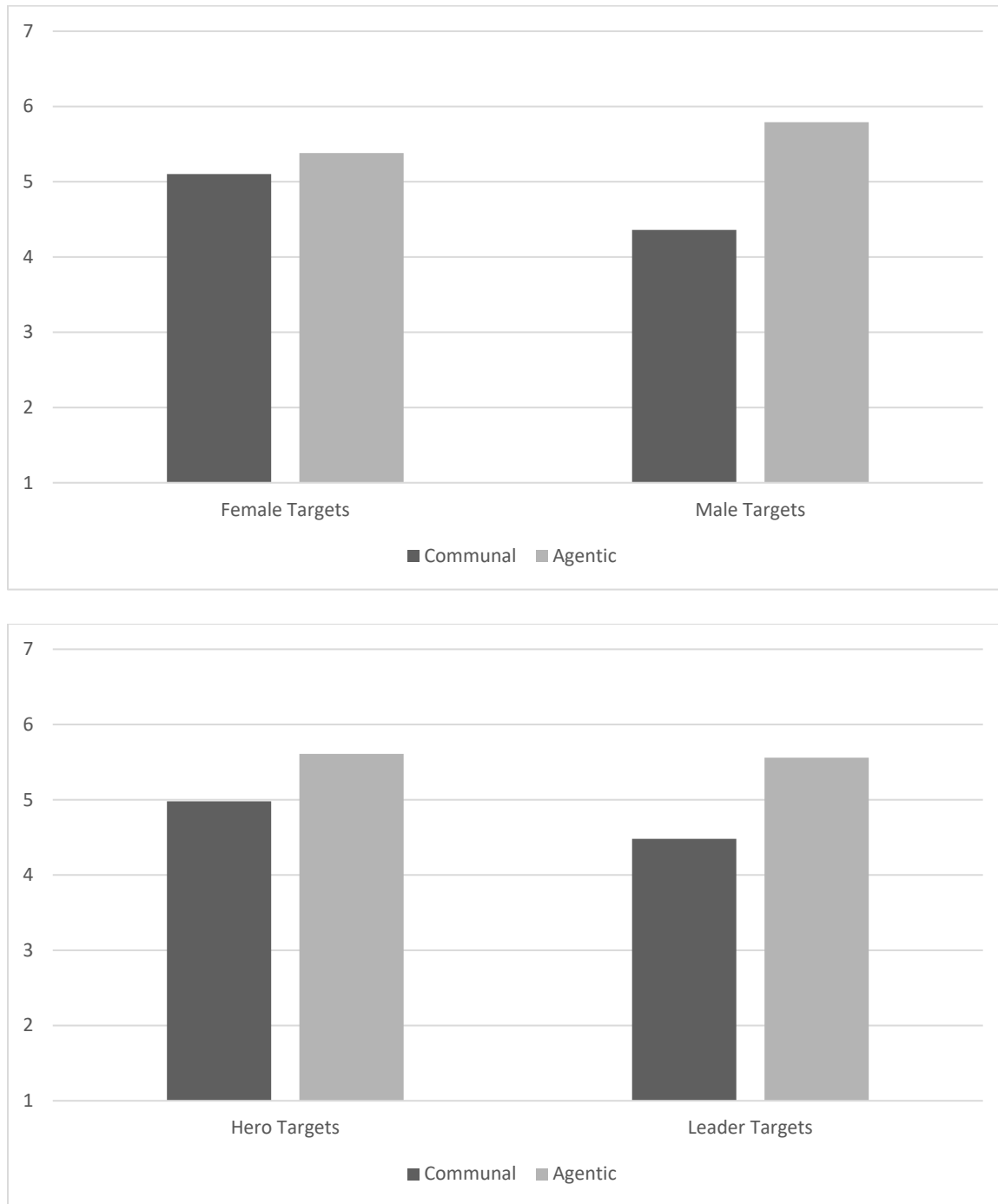


Figure 5. Study 4: Trait evaluations of female and male targets and hero and leader targets.