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Ingroup Relevance Appraisals: Structure and Correlates of Perceiving Threats and Opportunities From Ingroups

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People are vigilant to how the groups around them facilitate or inhibit their goals, but we know little about how they appraise the relevance of a particularly important type of group: their ingroups. We test whether the Relevance Appraisal Matrix—a model of person perception structured around goal-contingent threat and opportunity appraisals—captures the structure of people's ingroup perceptions. We find it does (Study 1, $n = 463$; Study 2, $n = 285$), meaning that appraisals of the threats and opportunities people's ingroups pose to their goal pursuit are orthogona and goal-specific. We also characterize ingroup relevance appraisals and explore the relationships between them and people's ingroup attitudes and identification (Study 2), finding that people generally rate their ingroups as relatively high-opportunity and low-threat across goals and that relevance appraisals of ingroups are variably and modestly associated with attitudes towards, and identification with, people's ingroups.

Keywords: goal pursuit, intragroup processes, relevance appraisals

As people navigate the world, they rely on the people and groups around them to help them achieve their various goals (Fitzsimons & Shah, 2008; Kelley, 1986; Orehek & Forest, 2016). A fundamental way that they understand who the people and groups around them are—and how or whether those people are likely to be instrumental to their goal pursuit—is by categorizing them as "like them" in important ways (i.e., ingroups) or as not like them (i.e., outgroups; Allport, 1954; Tajfel & Turner, 1979). Understanding how people appraise their ingroups' and outgroups' goal relevance is thus fundamental to understanding how people navigate the

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world. However, most of what we know about people's appraisals of others' goal relevance comes from research focusing primarily on their perceptions of *outgroups*. In contrast, the domain of *ingroup* relevance appraisals remains relatively unexamined. This is a particularly important oversight because we spend so much time with our ingroups that they are likely well-positioned to both help and hurt us across a variety of situations. Applying a goal-relevance lens to ingroup person perception will thus enable us to sharpen our theorizing about how we feel and behave toward those with whom we interact frequently, and could lay the groundwork for understanding a range of intragroup outcomes, including but not limited to relationship formation, maintenance, and dissolution (see Orehek et al., 2018), group identification, and other processes implicating one's attachment to one's ingroups.

We address our relative lack of understanding of ingroup relevance appraisals by systematically examining how people appraise their ingroups' goal-relevance. Specifically, we pursue three aims, which involve examining the structure of ingroup relevance appraisals (Studies 1–2), whether people's ingroup relevance appraisals vary (in kind and strength) across different social goals (Study 2), and how these relevance appraisals relate to two important intragroup outcomes: ingroup identification and ingroup attitudes (Study 2). By satisfying these three aims, the present work lays the groundwork for the study of intragroup person perception through the lens of relevance appraisals.

RELEVANCE APPRAISALS

People are vigilant to how and whether others might help or hinder them towards achieving what they want out of life (Bayer et al., 2020). That is, others can be appraised as presenting obstacles (i.e., threats) and advantages (i.e., opportunities) to people's goal pursuit (Neuberg & Cottrell, 2008). We term the resulting appraisals "relevance appraisals" (Lassetter et al., 2021; Neel & Lassetter, 2019). Recent work developing the Relevance Appraisal Matrix—a model of person perception structured around goal-contingent threat and opportunity appraisals—has advanced our understanding of relevance appraisals, in particular by documenting two key insights.

The first of these insights is that threat and opportunity appraisals are distinct dimensions of social judgment. This means that for any particular goal, people are evaluated separately as either high or low on the threats they may pose, and high or low on the opportunities they may pose. This separation of threat and opportunity is important because it allows for a person to simultaneously be appraised as any combination of high and low on these two dimensions for a particular goal (Lassetter et al., 2021; Neel & Lassetter, 2019). That is, rather than merely sorting people into how threatening versus helpful they are along a single continuum, social perceivers make more complex judgments, for example appraising a person as simultaneously threatening *and* helpful, or alternatively, as neither threatening nor helpful and thus irrelevant to one's goal. Among other things, differentiating relevance appraisals into two dimensions versus one allows for more fine-grained

theorizing about the different ways that people may engage with those around them. For example, consider how a perceiver may have appraised other social groups in relation to their goal to remain healthy during the COVID-19 pandemic. While they may have (inaccurately) perceived immigrants as threatening to their goal of remaining healthy, owing perhaps to stereotypes about immigrants, they may at the same time have perceived doctors as both threatening and facilitating their goal, owing to doctors' frequent proximity to infected people and to their health care expertise, respectively.

The second of these insights is that relevance appraisals are dynamic across goals (Lassetter et al., 2021; Neel & Lassetter, 2019). This means that appraisals of whether someone threatens or facilitates a goal is specific to the goal(s) a perceiver has in mind, such that for a single perceiver, someone could be appraised as threatening one goal (e.g., to stay physically safe), but not threatening another (e.g., to get a job).

Relevance appraisals are a foundational aspect of social cognition with profound consequences for our social judgments and behaviors, such as who we pay attention to and who we ignore in social interactions, as well as who bears the burden of different forms of stigma (Eitam & Higgins, 2010; Moors et al., 2013; Neel & Lassetter, 2019). For example, whereas people who are appraised as high on threat but low on opportunity for a salient goal may be met with unwanted, negative attention and active discrimination, people appraised as low on both threat and opportunity for a salient goal may be rendered socially invisible and ignored (Neel & Lassetter, 2019). This insight has a number of implications for how we appraise and treat each other. In the context of stigmatized groups, for example, this suggests that different groups may not have the same experience of prejudice as others (e.g., animosity vs. invisibility) and may not even have a consistent experience of prejudice across time and contexts (as a function of their relationship to perceivers' salient goals).

Although much research on relevance appraisals has focused on appraisals of individuals, people may also appraise the goal relevance of groups (Lassetter, 2022). This is a natural consequence of people's tendency to perceive the social world in terms of groups in addition to (or sometimes instead of) individuals (Turner & Reynolds, 2012). Indeed, perceiving groups (rather than or in addition to) individuals is something people are well-equipped to do. In many instances, people perceive groups as entitative units rather than perceiving the individuals within those groups (Alt & Phillips, 2022; Phillips et al., 2018). They do so, for example, by encoding summary information about groups and applying corresponding judgments at the group level (Phillips et al., 2018). This is often a useful thing to do because of the comparatively large amount of cognitive resources necessary for extracting the information required for judgment and decision making on a person-by-person basis (Alt & Phillips, 2022; Whitney & Yamanashi Leib, 2018). Group-level perception, by comparison, reduces the cognitive burden.

Group perception differs from individual perception in important ways, several of which may in fact result in a heavy reliance on relevance appraisals at the group level. Crucially, with less individuaing information at their disposal, people

rely more on stereotypic judgments when perceiving groups than when perceiving individuals (Cooley & Payne, 2019). Because group stereotypes are among the bedrocks of relevance appraisals, to the extent that perceiving groups rather than individuals relies on coarse summary information like stereotypes, we might expect relevance appraisals to be a particularly common and potentially particularly impactful feature of people's appraisals at the group perception level.

What little research there has been on relevance appraisals of groups has largely focused on outgroups (e.g., Lassetter, 2022), at the expense of perceptions of groups with which people spend much of their time—ingroups. Yet, which group a person belongs to is a key factor in shaping how they perceive different groups. For example, people perceive outgroups to be more homogenous (Linville et al., 1989), suggesting that they are encoded with less nuance and complexity compared to ingroups (e.g., Heilman, 1984; Linville et al., 1989).

RELEVANCE APPRAISALS OF INGROUPS

Ingroups can provide opportunities to reach our goals (Allport, 1954), for example by helping to fulfill socialization and relational needs (Nahemow & Lawton, 1975; Reagans, 2011), by providing care, tangible support, and resources (Allport, 1954), or as a source of potential romantic partners (Liu et al., 1995). At the same time, ingroups may sometimes threaten people's goal pursuit. For example, just as people's ingroups might be appraised as opportunities for finding new romantic partners, those same groups may also present competitors for those same partners.

Yet despite the importance of ingroup affordances, we do not know how they manifest or how they relate to important intragroup outcomes. While the theoretical perspective on relevance appraisals described above *could* apply to ingroups as well as outgroups, this merits dedicated empirical tests. Ingroups serve unique functions for perceivers that outgroups simply do not: people often derive parts of their identities from their group memberships and use their group memberships to inform how they think about their relationship to the social world that surrounds them (Ellemers et al., 2002; Tajfel & Turner, 1979). Because of ingroups' importance to the self and people's tendency to see ingroups positively (Tajfel & Turner, 1979), people may categorize their ingroups in a more dichotomous way than outgroups (e.g., as simply threatening or facilitating their goals). Finally, from a scientific standpoint, we simply do not know whether the independence of relevance appraisals generalizes to ingroups until we have tested this. For these reasons, we cannot take for granted that threat and opportunity appraisals of ingroups will be independent like those of outgroups, nor that they vary across goals.

CONSEQUENCES OF RELEVANCE APPRAISALS OF INGROUPS

Understanding if ingroup relevance appraisals are independent, and if they vary across goals can help us to see a more nuanced picture of important intragroup outcomes. Multiple theoretical perspectives predict that how people engage with

their ingroups (e.g., by affiliating closely with them or distancing from them) is partially a result of the functions they expect their ingroups to serve (e.g., self-protection; Branscombe et al., 1999; Correll & Park, 2005; Meyer, 2003). Ingroup relevance appraisals may thus affect how people feel about their ingroups (i.e., ingroup attitudes) and how people feel about their place within them (i.e., ingroup identification). Given that people feel good about and closer to others who benefit them (Orehek et al., 2018; Orehek & Forest, 2016), we expect to see that appraising ingroups as opportunities relates to positive attitudes towards ingroups, and stronger identification with them. We expect the opposite for threat appraisals.

Understanding the cognitive structure of ingroup relevance appraisals, and the consequences of these appraisals, can help us to get a fuller picture of ingroups' meaning and function within perceivers' social lives. This is a potentially impactful thing to understand; factors like structural segregation and individual self-selection lead people to spend a disproportionate amount of time with their ingroups, relative to outgroup alternatives (McPherson et al., 2001). Whatever impacts ingroups have on goal pursuit thus stand to have an outsized impact on people's lives.

PRESENT WORK

To advance understanding of intragroup perception and processes, we pursue three broad aims. First, we document the structure of ingroup relevance appraisals. Specifically, we test whether people perceive the threats and opportunities posed by their ingroups along discrete dimensions and as goal-contingent. We predicted that they would in both cases. We address these questions in Study 1 (and replicate Study 1's findings in Study 2). Second, we characterize people's ingroup relevance appraisals by comparing how strongly they perceive their ingroups and outgroups to pose threats and opportunities across fundamental social goals. Little work has assessed the specific goals that people feel are enabled or inhibited by their ingroups. We thus aim to provide a descriptive foundation upon which researchers can build a more nuanced collective understanding of intragroup processes. Third, we assess the extent to which people's ingroup (and outgroup) relevance appraisals are related to their attitudes towards, and identification with, those groups. These tests were exploratory. Preregistrations for both studies, along with open materials, data, and code, are available on the Open Science Framework (OSF): https://osf.io/sd3v4/.

STUDY 1: STRUCTURE OF INGROUP RELEVANCE APPRAISALS

In Study 1, we tested whether the basic factor structure of relevance appraisals theorized by Neel and Lassetter (2019) and previously examined with individuals and outgroups (Lassetter, 2022; Lassetter et al., 2021) also describes people's ingroup appraisals. That is, are threat and opportunity appraisals of ingroups unique dimensions of social cognition, and are they specific to goal domains?

METHOD

In this repeated-measures study, participants responded to items in the context of multiple goals, reflecting various fundamental social motives (e.g., affiliation, self-protection, mate-seeking; Neel et al., 2016). Methods for this study were adapted from previous work (Lassetter et al., 2021).

PARTICIPANTS

Participants were recruited through Prolific (prolific.com) from six Western, English-speaking countries: Australia, Canada, Ireland, New Zealand, the United Kingdom, and the United States of America. Participants who had completed previous studies in similar lines of research were prescreened out.

We conducted a simulation-based power analysis informed by results from Study 2 of Lassetter and colelagues (2021) to determine the sample size required for 80% power to detect significant likelihood ratio tests in each of the planned model comparisons. This procedure yielded a required sample size of n = 300. Because this figure was lower than the sample size used in previous investigations (Lassetter et al., 2021) and because we were not resource constrained, we increased our desired sample size to n = 400. To account for probable exclusions, we added 20% to this figure for a recruitment goal of n = 480. Recruited, excluded, and retained participants, including reasons for exclusions, are detailed in Table 1. Selected participant demographics are summarized in Table 2.

PROCEDURE

Participants completed the study in a single online session. After consenting, participants provided their most central identity, which was later piped into other

TABLE 1. Recruited, Excluded, and Retained Participants

	Study 1	Study 2
Recruited	482	303
Exclusions		
Nationality	1	1
Attention Check 1	7	5
Attention Check 2	4	8
Identity Prompt	5	2
Comprehension	2	1
Missing Data	0	1
Final Sample	463	285

Note. See Study 1 and 2 "Measures" sections for items used for each above source of exclusions, except missing data, which were dealt with through listwise deletion.

TABLE 2. Participant Demographics

Demographic	Study 1	Study 2
Age		
M; *SD* (years)	34.04; 11.89	31.58; 11.61
Min; Max (years)	18; 75	18; 72
No response (*n*)	1	0
Gender		
Man (%)	31.10	32.98
Nonbinary (%)	0.22	2.11
Woman (%)	68.25	64.21
Another gender (%)	0.00	0.00
Multiple (%)	0.43	0.70
No response (*n*)	0	0
Race		
Asian/Asian American (%)	11.23	15.09
Black/African American (%)	3.23	3.51
Hispanic/Latinx (%)	1.30	1.75
Middle Eastern (%)	0.65	0.35
Native American (%)	0.00	0.00
Native Hawaiian or Pacific Islander (%)	0.22	0.70
White (%)	75.38	68.77
Another race (%)	5.18	5.61
Multiple (%)	2.81	4.21
No response (*n*)	0	0

survey measures to ensure we were asking participants about identities they held and that were important aspects of their sense of self (e.g., "In general, I feel that the group 'young people' socially excludes me"). Participants then responded to measures of perceived threats and opportunities posed to them by their ingroups for a sample of fundamental social goals (Neel et al., 2016) and to a measure of ingroup identification, all presented in random order. The first attention check was embedded at a random place within the ingroup identification measure. Finally, participants completed a demographic survey, the second attention check, provided thoughts about the study in an open-ended prompt, and were debriefed.

MEASURES

For brevity, only measures relevant to the primary analyses are presented in the main text. All others are presented in the online supplement.

TABLE 3. Selected Focal Identity Categories

Selected Identity	Study 1	Study 2
	%	%
Age	24.84	22.46
Nationality	15.98	18.60
Political ideology	15.77	16.49
Race/ethnicity	8.42	8.07
Religion	7.13	8.77
Sex/gender	25.05	21.75
Sexual orientation	2.81	3.86

Identity Prompt. Participants' central identities were elicited using the prompt, "Please select the trait of yours that you feel is most important to your sense of who you are as a person" with the response options: age, nationality, political ideology, race/ethnicity, religion, sex/gender, and sexual orientation. Participants' responses are summarized in Table 3. Following this, participants were asked what specific label they would use to describe the trait they had selected. Participants were presented with example response options (e.g., for age, "teenage," for nationality, "Canadian," for race, "Black", etc.) but were also allowed to provide their own label if one with which they identified was not present. As these identity labels would be piped into subsequent survey questions, participants who wrote something that would undermine comprehension of subsequent items (e.g., participants who wrote whole sentences instead of single words or phrases describing their identity) were excluded (see Table 1; "Identity Prompt").

Threats and Opportunities. Participants responded to sets of three items assessing the extent to which they perceived their focal ingroup as posing threats and opportunities to them for each of the seven goals on 7-point scales anchored by –3 (*Strongly Disagree*) and 3 (*Strongly Agree*), with a *Neither Agree nor Disagree* midpoint label at 0. Items were partially adapted from previous work (Lassetter et al., 2021; Neel et al., 2016). Example items for each measure are included in Table 4, and complete materials are available on OSF: https://osf.io/sd3v4/.

Attention Checks. We administered two attention checks. The first, administered within the ingroup identification scale (above), asked participants to choose "Strongly Agree" from the same response options for the ingroup identification scale. The second was administered at the end of the study and asked participants to indicate whether they paid attention and answered carefully or not. The number of participants excluded for each attention check is displayed Table 1.

TABLE 4. Example Threat and Opportunity Items and Descriptive Statistics From Study 1

Appraisal	Goal	Example Item	*M* (*SD*)	α
Threat	Affiliation	In general, I feel that the group "[identity] people" socially excludes me.	–1.64 (1.36)	.93
	Disease Avoidance	In general, I feel that the group "[identity] people" increases my risk of physical illness.	–1.81 (1.35)	.93
	Kin Care	In general, I feel that the group "[identity] people" prevents me from taking care of my loved ones.	–1.75 (1.26)	.89
	Mate Retention	In general, I feel that the group "[identity] people" steals romantic or sexual partners from me.	–1.21 (1.38)	.81
	Mate Seeking	In general, I feel that the group "[identity] people" competes with me for new romantic or sexual partners.	–1.02 (1.42)	.80
	Self-Protection	In general, I feel that the group "[identity] people" endangers my physical safety.	–2.02 (1.21)	.91
	Status	In general, I feel that the group "[identity] people" undermines my social status.	–1.13 (1.47)	.91
Opportunity	Affiliation	In general, I feel that the group "[identity] people" includes me in social situations.	1.45 (1.12)	.89
	Disease Avoidance	In general, I feel that the group "[identity] people" keeps me from getting sick.	–0.30 (1.48)	.99
	Kin Care	In general, I feel that the group "[identity] people" helps me care for my loved ones.	0.43 (1.39)	.89
	Mate Retention	In general, I feel that the group "[identity] people" helps my romantic or sexual partners remain loyal to me.	0.19 (1.44)	.94
	Mate Seeking	In general, I feel that the group "[identity] people" includes others that I would be interested in as a romantic or sexual partner.	0.35 (1.64)	.84
	Self-Protection	In general, I feel that the group "[identity] people" keeps me safe from physical danger.	0.08 (1.05)	.95
	Status	In general, I feel that the group "[identity] people" elevates my social status.	–0.14 (1.32)	.91

RESULTS

Analytic Strategy

To test our main research questions, we conducted confirmatory factor analysis (CFA) using the *lavaan* package in *R* (R Core Team, 2021; Rosseel, 2012).

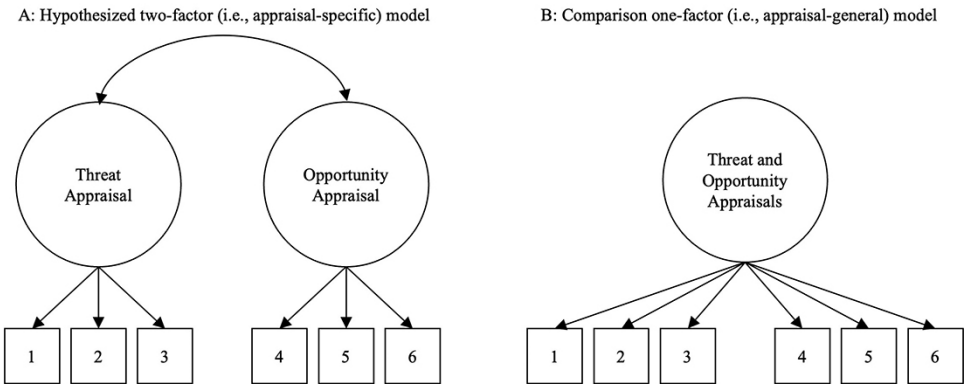

FIGURE 1. Example appraisal specificity models in Study 1. For each goal domain, we constructed a pair of models based on the generic examples above, using the relevant threat and opportunity items for that goal (see Table 4).

Threats and Opportunities: Distinct Appraisals of Ingroups?

To test whether appraisals of ingroup threats and opportunities were distinct dimensions (versus opposite ends of a single dimension), we constructed a series of two- and one-factor models ("Appraisal-Specificity Models") and submitted them to model comparison. The two-factor models specified appraisals of threats and appraisals of opportunities as separate dimensions, whereas the one-factor models specified them as a single dimension (Figure 1). We constructed one set of such models for each goal domain.

After constructing each pair of models, we submitted them to nested model comparison. Results of these comparisons, alongside model fit statistics, are presented in Table 5. In general, the two-factor models fit well or adequately (Hu & Bentler, 1999), whereas the one-factor models fit poorly in all cases. In all cases, the two-factor models fit the data better than the one-factor models, indicating that participants' appraisals of the threats and opportunities posed by their groups are better represented by two dimensions than one.

Are Threat and Opportunity Appraisals of Ingroups Goal-Specific?

Next, to test whether appraisals of ingroup threats and opportunities were goal-specific, we constructed two new sets of models ("Goal-Specificity Models"). First, we constructed a seven-factor threat model with threat items for each goal domain loaded onto separate factors and a one-factor threat model with all the threat items across all goal domains loaded onto a single factor. Second, we constructed analogous seven- and one-factor opportunity models (Figure 2).

After constructing each set of models, we submitted them to nested model comparison. Results and model fit statistics are presented in Table 6. Both seven-factor

TABLE 5. Model Fit Statistics and Results of Model Comparisons for Appraisal Specificity Models in Study 1

	Appraisal-Specific Models			Appraisal-General Models			Model Comparison		
Domain	**CFI**	**SRMR**	**RMSEA [90% CI]**	**CFI**	**SRMR**	**RMSEA [90% CI]**	χ^2	*df*	*p*
Affiliation	.99	.03	.07 [.05, .10]	.68	.19	.39 [.37, .42]	617.32	1	< .001
Disease Avoidance	.99	.02	.06 [.02, .09]	.55	.28	.47 [.45, .50]	913.59	1	< .001
Kin Care	.98	.02	.10 [.07, .13]	.49	.28	.46 [.43, .48]	828.90	1	< .001
Mate Retention	.99	.05	.07 [.05, .10]	.32	.30	.55 [.53, .58]	1258.20	1	< .001
Mate Seeking	.98	.05	.10 [.07, .13]	.44	.25	.44 [.42, .47]	787.99	1	< .001
Self-Protection	.99	.04	.07 [.04, .10]	.41	.33	.59 [.57, .62]	1434.20	1	< .001
Status	.98	.03	.10 [.07, .13]	.54	.27	.47 [.45, .50]	902.20	1	< .001

Note. *p* values are Bonferroni-corrected for a family of seven comparisons.

models fit well and both single-factor models fit poorly. In both cases, the seven-factor models fit the data better than the one-factor models, indicating that participants' appraisals of the threats and opportunities posed by their groups are better represented in a domain-specific way than in a domain-general way.

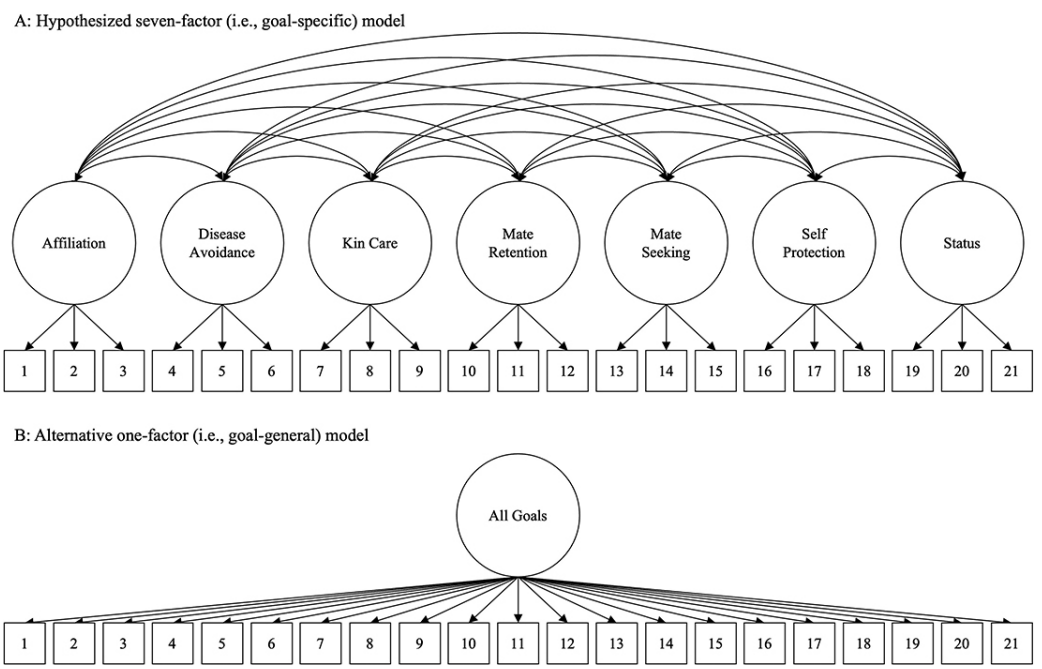

FIGURE 2. Example goal specificity models in Study 1. For each type of appraisal (i.e., threat and opportunity), we constructed separate sets of models based on the generic examples above, using the relevant items (see Table 4).

TABLE 6. Model Fit Statistics and Results of Model Comparisons for Goal Specificity Models in Study 1

	Goal-Specific Models			Goal-General Models			Model Comparison		
Domain	**CFI**	**SRMR**	**RMSEA [90% CI]**	**CFI**	**SRMR**	**RMSEA [90% CI]**	χ^2	*df*	*p*
Opportunity	.97	.06	.06 [.05, .07]	.37	.15	.24 [.23, .24]	4731.4	21	< .001
Threat	.97	.05	.05 [.05, .06]	.46	.14	.21 [.21, .22]	3765.0	21	< .001

Note. *p* values are Bonferroni-corrected for a family of two comparisons.

Correlations Between Threats and Opportunities Across Goals

Finally, we explored the pattern of correlations between threat and opportunity appraisals. In Figure 3, correlations between all threat and opportunity appraisals are visualized. They are presented here with *p* values Bonferroni-corrected for a family of seven comparisons. No consistent pattern emerged; some domains exhibited negative correlations (affiliation: $r(461) = -.44$, $p_{adj} < .001$ and status: $r(461) = -.26$, $p_{adj} < .001$), some exhibited positive correlations (mate-retention: $r(461) = .19$, $p_{adj} < .001$), and some exhibited no significant correlation (self-protection: $r(461) = -.07$, $p_{adj} = .879$; disease avoidance: $r(461) = .00$, $p_{adj} = 1.000$; mate-seeking: $r(461) = -.01$, $p_{adj} = 1.000$; kin care: $r(461) = -.07$, $p_{adj} = 1.000$).

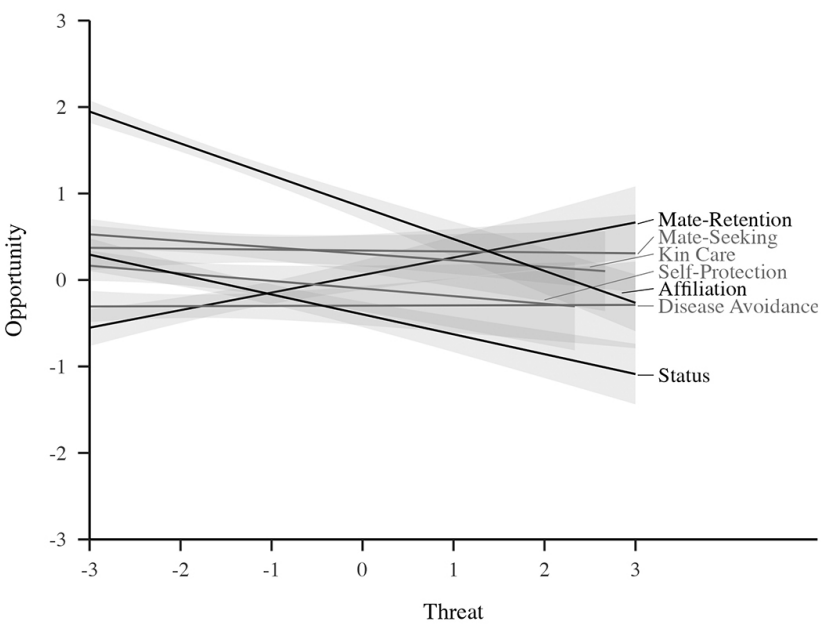

FIGURE 3. Correlations between threat and opportunity appraisals in Study 1. Shaded areas reflect ± 1 *SE*. Black lines and text represent significant correlations; grey lines and text represent nonsignificant correlations.

DISCUSSION

We found that when appraising their ingroups, people mentally structure relevance as two orthogonal dimensions of opportunity and threat, rather than a single dimension. In addition, we also found that most correlations between threat and opportunity appraisals were small and that the pattern of correlations between threat and opportunity appraisals was quite variable between goal domains. This variable pattern of relationships further illustrates that threat and opportunity are not merely the opposite of each other; they are largely independent of one another and their precise relationship depends on the nature of the goal at hand.

The present results open the door for using the Relevance Appraisal Matrix to study appraisals of types of groups beyond those for which they were originally envisioned, including the groups with which people spend most of their time—their ingroups. Specifically, in Study 1, we confirmed that relevance appraisals of ingroups are complex, and we can use this information to make more precise predictions about them, as researchers have begun doing with relevance appraisals of outgroups. These appraisals may be influential for the types of experiences we should expect people to have with their ingroups, a question we investigated in Study 2.

STUDY 2: CHARACTER AND CORRELATES OF INGROUP RELEVANCE APPRAISALS

After confirming that people appraise their ingroups along discrete dimensions of threat and opportunity and in a goal-contingent way, we next sought to characterize how ingroups were appraised along these dimensions and across goals and to explore the correlates of these appraisals. Unlike in Study 1, where we examined participants' appraisals of only their ingroups, in Study 2, we collected data on appraisals of both ingroups and outgroups to allow us to characterize ingroup appraisals and their correlates by contrasting them with outgroup appraisals. Specifically, we explored how high- or low-threat and high- or low-opportunity ingroup members were appraised as being relative to outgroups across a sample of fundamental social goals. We then explored the relationships between threat and opportunity appraisals and ingroup attitudes and identification.

METHOD

Participants

We recruited participants with the same pre-screening criteria and following the same procedure as in Study 1. To determine our target sample size, we conducted a simulation-based power analysis based on the data from Study 1 for 80% power to detect significant effects as small as $b = 0.10$ in each of the planned models. This procedure yielded a required sample size of $n = 250$ ($obs = 500$ after repeated measures), which we rounded up by 20% to account for probable exclusions for a

total recruitment goal of $n = 300$ participants. All recruited, excluded, and retained participants are detailed in Table 1.

Procedure

Participants followed the same procedure as in Study 1 with two exceptions. First, participants were asked to nominate both ingroup and outgroup identities instead of only ingroup identities (see "Identity Prompts" below). Second, participants completed two sets of the same questionnaires, in random order, one asking them questions in the context of the ingroup label with which they identified, and the other asking them questions in the context of the outgroup label. Within each portion of the questionnaire (i.e., the ingroup portion and the outgroup portion), measures were presented in random order.

Measures

Identity Prompts. First, participants' central identities were elicited using the same method as in Study 1 (for responses, see Table 3). After selecting an identity domain and ingroup label, participants were then asked to select a second label within the same identity domain that reflected "the group that you think society views as most different from people of your [identity domain]." Participants were provided with the same response options as for the ingroup identity labels (e.g., "middle-age," etc.) and a text entry option.

Threats and Opportunities. Participants completed the same measures of perceived threats and opportunities for the same seven goals as in Study 1 (see Table 4 for example items) in the context of both the ingroup and outgroup labels they selected (see Table 7 for descriptive statistics).

Group Identification. For use as a manipulation check and in exploratory analyses, we measured ingroup identification using the four-item cognitive subscale of the Arrow-Carini Identification Scale (example item: "I think of the group '[identity] people' as part of who I am; $M = -0.11$, $SD = 1.82$, $\alpha = .87$; Henry et al., 1999), to which participants responded on 7-point scales anchored by –3 (*Strongly Disagree*) and 3 (*Strongly Agree*), with a *Neither Agree nor Disagree* label at the 0 midpoint. Participants responded to this scale in the context of both ingroup and outgroup labels.

Group Attitudes. For exploratory analyses, participants responded to three-item feeling thermometer-type measures (example item: "How negative or positive do you feel about people who are [identity]"; $M = 4.00$, $SD = 1.50$, $\alpha = .94$). Participants responded on 7-point scales anchored by response options 0 (*Very Negative*) and 6 (*Very Positive*), with a *Neutral* label at the 0 midpoint. Again, these items were administered in the context of both ingroup and outgroup labels.

TABLE 7. Threat and Opportunity Descriptive Statistics Collapsed Across Ingroup and Outgroup Appraisals from Study 2

Goal	Relevance Appraisal	*M* (*SD*)	α
Affiliation	Opportunity	0.80 (1.60)	.90
	Threat	–1.07 (1.69)	.95
Disease Avoidance	Opportunity	–0.33 (1.61)	.92
	Threat	–1.57 (1.59)	.93
Kin Care	Opportunity	–0.15 (1.62)	.94
	Threat	–1.52 (1.50)	.94
Mate Retention	Opportunity	–0.54 (1.56)	.96
	Threat	–1.10 (1.66)	.91
Mate Seeking	Opportunity	0.17 (1.86)	.87
	Threat	–1.21 (1.47)	.81
Self-Protection	Opportunity	–0.33 (1.69)	.96
	Threat	–1.58 (1.60)	.94
Status	Opportunity	–0.53 (1.54)	.92
	Threat	–0.94 (1.62)	.91

Attention Checks. We administered the same two attention checks as in Study 1 (see Table 1).

RESULTS

Replication of Findings From Study 1

First, we sought to verify that the structure of relevance appraisals found in Study 1 was replicable in the Study 2 sample. To do so, we subsetted the sample to include only those observations corresponding to appraisals of ingroups and then repeated the same procedure from Study 1.

Structure of Threat and Opportunity Appraisals. First, we re-ran the analyses testing whether appraisals of threats and opportunities were distinct. Replicating the results of Study 1, we found that they were (Table 8). The two-factor (i.e., appraisal-specific) models fit well or adequately, while the one-factor (i.e., appraisal-general) models fit poorly. Furthermore, the two-factor model fits were significantly better than the one-factor model fits in all cases.

Goal-Contingency of Threat and Opportunity Appraisals. Next, we re-ran the analyses testing whether appraisals of threats and opportunities were goal-specific. Again replicating the results of Study 1, we found that they were (Table 9). The

TABLE 8. Model Fit Statistics and Results of Model Comparisons for Appraisal Specificity Models in Study 2

	Appraisal-Specific Models			Appraisal-General Models			Model Comparison		
Domain	**CFI**	**SRMR**	**RMSEA [90% CI]**	**CFI**	**SRMR**	**RMSEA [90% CI]**	χ^2	*df*	*p*
Affiliation	.99	.02	.05 [.01, .08]	.76	.16	.38 [.36, .40]	720.43	1	< .001
Disease Avoidance	.99	.03	.06 [.03, .08]	.51	.30	.51 [.49, .54]	1338.00	1	< .001
Kin Care	.99	.01	.07 [.04, .10]	.52	.30	.53 [.51, .56]	1432.20	1	< .001
Mate Retention	.99	.02	.04 [.00, .07]	.41	.31	.61 [.58, .63]	1870.10	1	< .001
Mate Seeking	.98	.06	.10 [.08, .13]	.36	.27	.50 [.48, .53]	1254.90	1	< .001
Self-Protection	.99	.03	.05 [.00, .10]	.45	.30	.51 [.48, .54]	662.74	1	< .001
Status	.99	.01	.00 [.00, .00]	.50	.28	.49 [.47, .51]	1230.90	1	< .001

Note. *p* values are Bonferroni-corrected for a family of seven comparisons.

goal-specific models fit well, the goal-general models did not, and the goal-specific models fit significantly better than the goal-general models.

Analytic Strategy for Main Analyses

To account for the repeated-measures nature of the design (i.e., participants completing the same measures in the context of ingroup and outgroup labels), we analyzed the data using multilevel modeling, using the *lme4* and *lmerTest* packages in *R* (Bates et al., 2015; Kuznetsova et al., 2017; R Core Team, 2021). Standardized effect sizes for multilevel models were calculated using the Edwards and colleagues (2008) approximation for semipartial R^2.

Clustering

Prior to conducting the main analyses, we assessed the extent to which each outcome variable clustered within participants and within identity categories. ICCs for participants ranged between .00 and .25, suggesting sufficient clustering to justify its inclusion as a grouping variable for at least some dependent variables. ICCs for identity category ranged between .00 and .07, suggesting insufficient clustering to justify its inclusion as a grouping variable.[1] We thus included participant—but not identity—as a Level 2 grouping variable where possible unless otherwise specified. Our two-times repeated measures design allowed us to include a random intercept, which we did in all cases, but no additional random effects.

The predictor variable in all models was target group (ingroup vs. outgroup). This variable was centered such that outgroup observations were assigned a value of 0.5 and ingroup observations were assigned a value of –0.5.

1. Note that some models used to calculate ICCs were singular, likely due to the very small amount of variance accounted for by identity category grouping variable, which was accordingly dropped from future analyses.

TABLE 9. Model Fit Statistics and Results of Model Comparisons for Goal Specificity Models in Study 2

	Goal-Specific Models			Goal-General Models			Model Comparison		
Domain	**CFI**	**SRMR**	**RMSEA [90% CI]**	**CFI**	**SRMR**	**RMSEA [90% CI]**	χ^2	*df*	*p*
Opportunity	.98	.05	.05 [.05, .06]	.44	.14	.25 [.24, .25]	6355.00	21	< .001
Threat	.97	.05	.06 [.05, .07]	.44	.16	.24 [.23, .24]	5749.50	21	< .001

Note. *p* values are Bonferroni-corrected for a family of seven comparisons.

Manipulation Check

First, to check whether our within-subjects manipulation of identity groups was successful, we tested whether participants identified more strongly with their ingroup than their outgroup. We ran a model predicting group identification from target group (ingroup vs. outgroup).[2] Participants identified more strongly with their ingroup ($M = 1.25$, $SE = 0.07$) than their outgroup ($M = –1.46$; $SE = 0.07$; $b = –2.70$, $SE = 0.10$, $t(568) = –26.41$, $p < .001$, $R^2 = .55$). We additionally quantified the proportion of our participants for which the manipulation worked (i.e., the proportion who identified more strongly with their ingroup than their outgroup) using the percent correct classification (PCC) method for within-subjects designs (Grice, 2011), and found that our manipulation was successful for a high proportion of participants (i.e., PCC = 90.88%). This effect is visualized in Figure 4.

Opportunity Appraisals

Next, we examined whether ingroups or outgroups were viewed as higher or lower in opportunity across goals. To do so, we predicted each of the seven opportunity appraisals from target group (ingroup vs. outgroup). In all models, ingroups were viewed as presenting greater opportunities than outgroups ($ps_{adj} < .001$; $.09 \leq R^2s \leq .54$). Key results are summarized in Table 10 and visualized in Figure 5.

Threat Appraisals

Next, we examined whether ingroups or outgroups were viewed as more or less threatening. We predicted each of the seven threat appraisals from target group. In five of seven models, ingroups were viewed as less threatening than outgroups ($ps_{adj} < .001$; $.05 \leq R^2s \leq .28$). In the other two models (mate retention and mate seeking), ingroups were viewed as more threatening than outgroups ($ps_{adj} < .001$; $.11 \leq R^2s \leq .23$). Results are summarized in Table 11 and visualized in Figure 5.

2. In this model, the Level 2 participant variable accounted for very little variance, and the model was thus singular. The random effect was therefore trimmed.

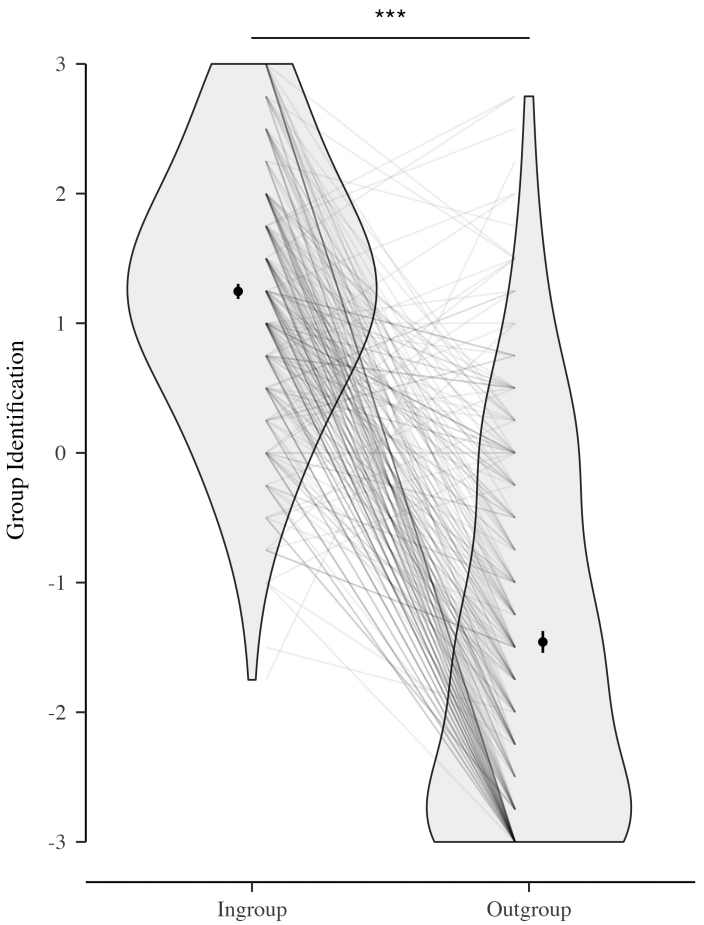

FIGURE 4. Manipulation check in Study 2. Points and error bars represent conditions means ± 1 *SE*. Lines link individual participants' responses to ingroup and outgroup questions. ***$p < .001$.

TABLE 10. Model Output for Opportunity Appraisal Models in Study 2

Goal	Ingroup		Outgroup		Model Output					
	M	*SE*	*M*	*SE*	*b*	*SE*	*t*	*df*	*p*	R^2
Affiliation	1.70	0.08	–0.10	0.08	–1.79	0.10	–18.38	284	< .001	.54
Disease Avoidance	–0.25	0.09	–1.24	0.09	–0.99	0.10	–9.87	284	< .001	.26
Kin Care	0.47	0.09	–0.77	0.09	–1.24	0.11	–10.92	284	< .001	.30
Mate Retention	–0.18	0.09	–0.90	0.09	–0.72	0.12	–6.24	284	< .001	.12
Mate Seeking[a]	0.72	0.11	–0.37	0.11	–1.09	0.15	–7.31	568	< .001	.09
Self-Protection	0.25	0.09	–0.92	0.09	–1.17	0.12	–9.63	284	< .001	.25
Status	–0.05	0.09	–1.00	0.09	–0.95	0.10	–9.40	284	< .001	.24

Note. *p* values are Bonferroni-corrected for a family of seven comparisons. [a]In this model, the Level 2 participant variable accounted for almost no variance, and the model was thus singular. The random effect was thus trimmed.

TABLE 11. Model Output for Threat Appraisal Models in Study 2

Goal	Ingroup		Outgroup		Model Output					
	M	*SE*	*M*	*SE*	*b*	*SE*	*t*	*df*	*p*	R^2
Affiliation	–1.70	0.09	–0.42	0.09	1.25	0.12	10.45	284	< .001	.28
Disease Avoidance	–1.82	0.09	–1.32	0.09	0.50	0.11	4.39	284	< .001	.06
Kin Care	–1.82	0.09	–1.22	0.09	0.60	0.11	5.38	284	< .001	.09
Mate Retention	0.55	0.09	–1.65	0.09	–1.10	0.12	–9.15	284	< .001	.23
Mate Seeking	–0.90	0.09	–1.52	0.09	–0.62	0.10	–6.00	284	< .001	.11
Self-Protection	–2.09	0.09	–1.08	0.09	1.00	0.13	7.95	284	< .001	.18
Status	–1.17	0.10	–0.72	0.10	0.45	0.11	3.97	284	< .001	.05

Note. *p* values are Bonferroni-corrected for a family of seven comparisons.

Exploratory Analyses

Lastly, we explored the relationships between threat and opportunity appraisals and people's feelings towards their groups. Specifically, we ran models predicting group attitudes and group identification, respectively, from threat and opportunity appraisals. We additionally included group membership (ingroup vs. outgroup) as moderators in these models so we could distinguish the relationships between threat and opportunity appraisals and participants' feelings towards

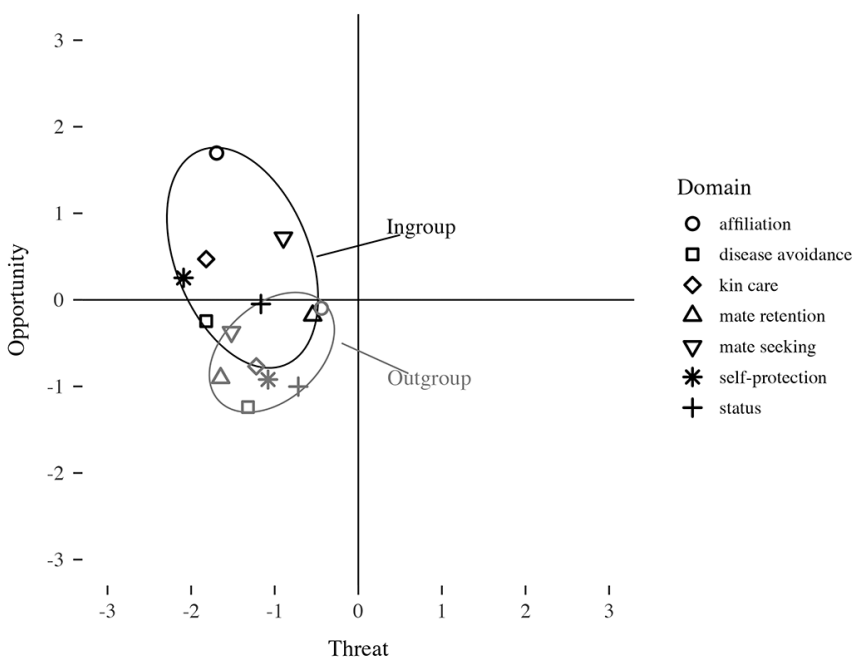

FIGURE 5. Threat and opportunity appraisals in Study 2.

ingroups from those towards outgroups. Lastly, for the models predicting group attitudes, we also included a random intercept for participants. Note however that the models predicting group identification were singular with this grouping variable included, as it accounted for close to no variance in most cases, so it was dropped. All key p values were Bonferroni-corrected for families of seven tests.

Full model outputs are available in the online supplement and key results from each model are visualized in Figure 6. In Figure 6, when a significant interaction between the threat or opportunity appraisal and group (i.e., ingroup vs. outgroup) emerged, estimates are standardized betas for the simple slopes corresponding for each type of group. In cases where interactions did not emerge, estimates are standardized betas for the average effect.

Appraisals of both opportunity and threat generally exhibited modest relationships with feelings towards ingroups, but with substantial heterogeneity, ranging from as small as $|\beta| = .00$ for the relationship between ingroup mate-seeking opportunity appraisals and group identification to as large as $|\beta| = .87$ for the relationship between outgroup affiliation opportunity appraisals and group attitudes. In some cases (i.e., 16/28 models), interactions between relevance appraisals and group status (i.e., ingroup vs. outgroup) were significant, almost always because relationships were stronger for appraisals of outgroups than for appraisals of ingroups. Focusing on appraisals of ingroups, significant relationships were either found in the simple effects for ingroup members or in the average effects (in cases where the interaction was not significant) in 10/28 models.

In general, it can thus be concluded that ingroup relevance appraisals often, though not always, have modest relationships with ingroup attitudes and identification. For the models reflecting opportunity appraisals, 7/14 of the relevant relationships were significant, compared to 3/14 in the threat appraisal models. Sliced another way, 4/14 of the relevant relationships in the attitude models were significant, compared to 6/14 for those in the identification models.

Discussion

By characterizing people's appraisals of their ingroups across multiple fundamental social goals, we demonstrated that people in many cases see opportunities flowing from their ingroups to a greater extent than from their outgroups, highlighting a basic and important function of the ingroup—goal satisfaction. Yet, an important nuance to these findings is that, for the mate seeking and mate retention domains, people experienced greater threats from their ingroups than from their outgroups, highlighting the goal-specificity of ingroup relevance appraisals. We additionally found that, in some cases, these relevance appraisals corresponded to how people felt about their groups and their identification with those groups.

GENERAL DISCUSSION

The present studies document, for the first time, the structure and correlates of people's relevance appraisals of their ingroups. We found (1) that people perceive

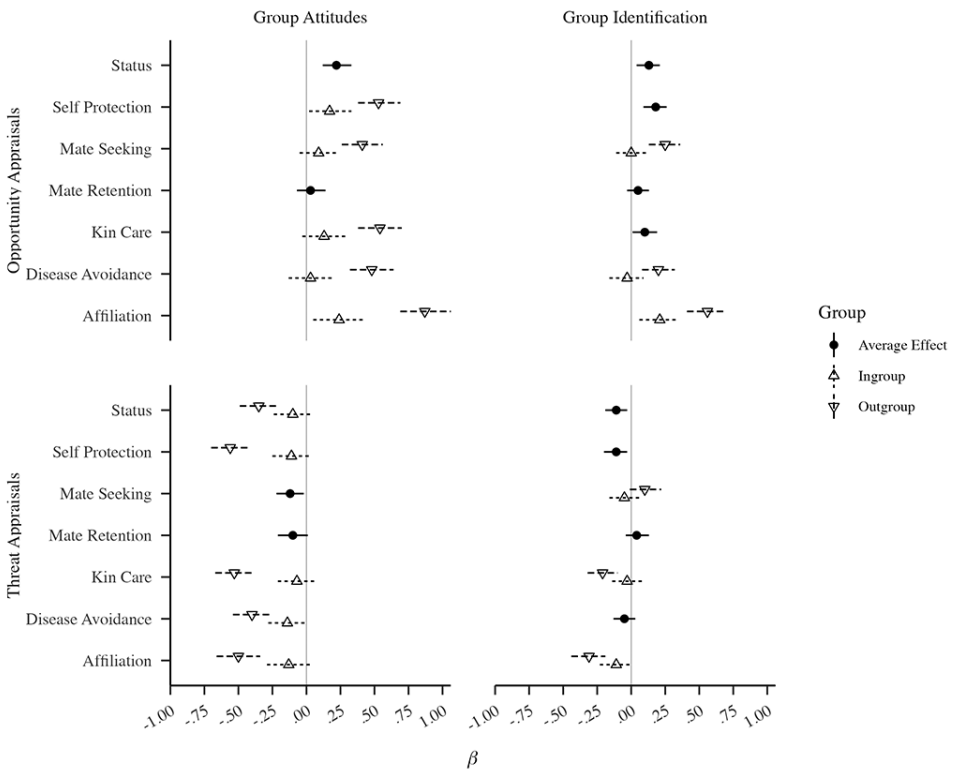

FIGURE 6. Relationships between threat and opportunity appraisals and group attitudes and group identification for ingroups and outgroups in Study 2. Bars represent 99.3% confidence intervals (i.e., 95% CIs Bonferroni-corrected for families of sevem tests).

threat and opportunity as distinct dimensions of person perception when evaluating ingroup members, (2) that these threat and opportunity appraisals are contingent on goal domains, (3) that ingroup members are universally perceived as higher-opportunity across fundamental social goals and were mostly, but not universally, perceived as lower threat, and (4) that these appraisals are sometimes associated with the important intragroup outcomes of group attitudes and identification, particularly in the case of opportunity appraisals. Together, this work lays the groundwork for the study of intragroup relevance appraisals and demonstrates the importance of considering people's goal-directed cognitions in intragroup processes.

A key insight from this work is that people distinguish between the threats and opportunities their ingroups pose across a range of goals—an insight that informs key questions in the study of group processes. One such question is that of when and why people affiliate with their ingroups, compared to when and why they distance themelves from them. The present framework suggests that how people engage with their ingroups may be partially a function of whether

(and when) they see their ingroups as a threat to goal pursuit and/or an opportunity to further it.

While ingroups were generally viewed as higher-opportunity and lower threat, in at least two goal domains (i.e., mate retention and mate-seeking), ingroups were viewed as more threatening than outgroups. One possibility for why this was the case is that people perceive ingroups as more threatening in domains in which they primarily compete for resources within groups (e.g., people primarily compete for romantic partners against other people with their same sexual orientation, gender, race, religion, etc.). Although ingroups are typically thought of as providing people with opportunities to reach their goals, these findings offer a more complex picture. There are many possible implications of perceiving one's ingroup as goal-threatening. For example, this insight could provide an explanation for some instances of intragroup conflict; people may perceive their ingroups to be relatively threatening when their goals are misaligned with those of their group, or even when their goals are aligned with those of their group, but when there may be limited capacity for all group members to achieve that goal. More work is needed to test this and other possibilities.

Finally, we have documented the relationships between ingroup threat and opportunity appraisals and how much people like, and identify with, their ingroups, demonstrating the relevance and potential importance of the present framework to the study of intragroup processes. At the same time, the inclusion of outgroups in the Study 2 data yields the insight that these relationships were often stronger for outgroup appraisals than for ingroup ones. Although more research is needed to test why, one possibility is that people tend to have more information about their ingroups than their outgroups, which may lead them to rely more heavily on factors such as a relevance appraisals for informing their perceptions of outgroups than of ingroups. A related possibility is that because people often include their ingroups in the self (Tropp & Wright, 2001), attitudes towards ingroups may be relatively more influenced by one's self concept than by one's appraisals of the outside world.

Altogether, these findings make important contributions to our understanding of the psychology of appraising others. We advance this understanding in a particularly important domain, as people spend a disproportionate amount of time with their ingroups, and how people feel and think about them may thus be disproportionately impactful for people's lives. Given the theorized outcomes of these relevance appraisals (e.g., prejudice, invisibility; Neel & Lassetter, 2019), these ingroup perceptions likely impact societally important outcomes.

LIMITATIONS AND FUTURE DIRECTIONS

One limitation of the current work is its inability to infer causality in the processes examined in Study 2. Specifically, we cannot distinguish between the possibilities that people's threat and opportunity appraisals affect ingroup identification and attitudes towards one's ingroups, from the possibility that group identifications and attitudes cause threat and opportunity appraisals. Future work should seek to distinguish between these possibilities.

We were also constrained by our samples of participants, goals, and identity domains (and specific identities within those domains). Our samples were online convenience samples. The goal domains we sampled were a set of goals considered to be fundamental social goals (Neel et al., 2016), but that are certainly not representative of all the goals someone might hold throughout their life. The identity domains we sampled and specific identities within those domains that participants held are likewise important domains and identities but are by no means representative of all identities. In particular, we have not presently attended to the marginalization or perceived entitativity of the identities participants held within the various identity domains, factors which might alter their intragroup experiences. All this should be the subject of future research.

Relatedly, future research should verify whether relevance appriaslas of ingroups and their downstream consequences vary by group. Features such as stigmatization, size, the presence of a coherent community, and more, may impact whether and to what effect ignroups are perceived as goal-relevant. Future work may thus research specific groups with more granularity or explicitly contrast a set of groups.

More broadly, this is the first work to assess whether the Relevance Appraisal Matrix may be informative for understanding how people perceive the goal relevance their ingroups, and what the consequences of those appraisals are for intragroup processes. We thus hope that this work represents the first, and not final, word on the important role of relevance appraisals in this domain.

CONCLUSION

Our ingroups are crucially important to our wellbeing, our day-to-day functioning, and our sense of self. Because we know ingroups are instrumental to our goal pursuit, we need to know how our relevance appraisals of them are structured. By documenting the Relevance Appraisal Matrix's utility as such a structure, how ingroups are perceived in terms of the threats and opportunities that they pose to people's goal pursuit, and how those appraisals relate to important intragroup outcomes across multiple goal domains, we document and advance an important and understudied aspect of people's intragroup social cognition. In so doing, this work lays the foundation for studying ingroup person perception through the lens of relevance appraisals.

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