Relational dynamics and meaning in life: Dominance predicts perceived social support, belongingness, and meaning in life[☆]

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ABSTRACT

Social relations arguably contribute to meaning in life. Here, we investigated the role of a disposition that fosters social connections and the desire to influence others - dominance. We hypothesised that dominance is associated with increased meaning in life through social mechanisms: perceptions of belongingness and social support. Two cross-sectional studies and one cross-lagged panel study tested these hypotheses. In Study 1, dominance boosted meaning in life through greater belongingness. Study 2 found support for a causal effect of dominance at Wave 1 on meaning in life at Wave 2, driven by elevated belongingness. Study 3 further demonstrated that elevated belongingness of dominant individuals derives from perceptions of increased social support and that both perceptions of social support and belongingness contributed to elevated meaning in life. We conclude that if social relations contribute to meaning in life, a dominant position within social relations can further promote a meaningful existence.

1. Introduction

People's meaning in their existence is strongly dependent on having social connections (Heine et al., 2006; MacKenzie & Baumeister, 2014; Moynihan et al., 2017; Stillman et al., 2009; Williams, 2002, 2007). Those who are strongly connected can experience social support and a sense of belongingness, factors that contribute to well-being and meaning in life. For instance, extraverts have more spontaneous social relations compared to introverts. Compared to introverts, extraverts have a stronger need to belong (i.e., the need to have social connections; Leary et al., 2013) and may gather more social support, which increases their sense of belongingness and meaning in life (Schnell & Becker, 2006). In a similar vein, individuals with dominant personalities spend a great deal of effort and time in social relationships. They thrive in communion with others (e.g., Anderson & Kilduff, 2009; Guinote & Chen, 2018; Keltner et al., 2003; Mazur & Booth, 1998; Schmid Mast, 2002) and are motivated to influence others through assertive and confident behavior (Buss & Craik, 1980; Gough, 1987; Wiggins, 1979). Their large networks could convey the perception of their popularity, being backed by others (i.e., the perception of social support), and a sense of belongingness. This, in turn, could elevate their meaning in life

due to the positive effects of belongingness and social support on meaning in life (e.g., Moynihan et al., 2017).

We examine the association between dominance and meaning in life, considering the roles of social relationships: the need to belong and perceived social support. In so doing, we seek to understand proximal mechanisms and subjective experiences of dominant individuals, which have thus far been neglected. From a broader perspective, this research contributes to understanding the interplay between individual differences in social relations and meaning in life.

1.1. Meaning in life

Humans are meaning-makers (e.g., Frankl, 2006; Heine et al., 2006; Postman & Weingartner, 1969). Meaning can refer to how people interpret the world (Heine et al., 2006), that is, epistemic meaning (e.g., Maher et al., 2019; Van Tilburg & Igou, 2013). It can also refer to the degree to which people's goals and needs (e.g., self-esteem, belongingness) are satisfied (Heine et al., 2006), that is, teleological meaning (e.g., Van Tilburg & Igou, 2013). The essence of meaning is also described in different ways, for example, as a mental representation of relationships between different aspects of life (Baumeister, 1991), as feelings of

coherence (Heintzelman & King, 2014), or as personal growth and self-transcendence (e.g., Deci & Ryan, 2000; Kasser & Sheldon, 2004). Research has convincingly demonstrated that the frequency and importance of meaning are strongly associated with people's subjective experiences and well-being (e.g., Adler & Fagley, 2005; Barrett et al., 2001; Bonebright et al., 2000; Diener & Biswas-Diener, 2008; Fredrickson, 2001). These real-life consequences confirm that meaning constitutes an actual psychological variable central to human life (e.g., Greenberg et al., 2004; Heine et al., 2006; Heintzelman & King, 2014; Steger et al., 2006; Van Tilburg & Igou, 2013). While various meaning models might point to slightly different sources of meaning, a sense of understanding, perceptions of social support, self-esteem, and belongingness are the usual suspects (e.g., Fiske, 2018; Heine et al., 2006).

Of importance in the present context are perceptions of social support and belongingess, that is, having regular social contact with those to whom one feels a sense of interrelatedness (Baumeister & Leary, 1995). Social support refers to the perception that one is cared for, esteemed, and backed by others (Taylor, 2011) or that one has material and psychological resources at one's disposal (Cohen, 2004). It is based on relationships, bonds, and positive interactions with others (Baumeister & Leary, 1995). People who objectively or subjectively possess social support tend to perceive themselves as part of a social network (Cobb, 1976). Social support has a number of benefits, including improving physical and mental health, engagement at work and in education, and the experience that life is meaningful (Taylor, 2011; Zumbrunn et al., 2014). A nationwide longitudinal survey found that both perceptions of actual support and anticipated social support among the elderly increased their meaning in life (Krause, 2007). Social support is beneficial even when it is not actualised, and this may occur through increased feelings of belongingness (Taylor, 2011). For example, the perception of social support in a school environment enhanced student engagement, and this was mediated by an elevated sense of belongingness (Vargas-Madriz & Konishi, 2021; Zumbrunn et al., 2014).

Belongingness refers to the experience of being part of a cohesive social unit that consists of strong, stable interpersonal relationships and frequent, non-aversive interactions within a relational bond (Baumeister & Leary, 1995). It concerns the subjective experience of connection with others (Allen et al., 2021; Baumeister & Leary, 1995). When people are socially excluded, ostracised, or lonely, meaning in life is drastically compromised (Baumeister & Leary, 1995; Williams, 2002, 2007; Zadro et al., 2004; Zhou et al., 2008). People with unmet belongingness needs can experience negative affective states, including depression and low self-esteem (Verhagen et al., 2018), and are less able to strive for their aims and desires (Baumeister, 2005). Social connections can give meaning to people's existence by increasing feelings of belongingness. For example, belonging to social groups contributes to a sense of order and meaning in an otherwise unstructured world (Hogg, 2005).

The relationship between a sense of belongingness and having a meaningful existence has been shown both in correlational and experimental research. Experiences of belongingness rose people's experience of meaning in life up to a few weeks later (Lambert et al., 2013). Temporarily induced feelings of belongingness, such as bringing to mind interactions with close others (vs. other people), also instilled feelings of meaning in life (Schlegel et al., 2011; see also Lambert et al., 2013; Zhang et al., 2018). Furthermore, belongingness elevates not only overall meaning in life but also the reliance on levels of belongingness to derive meaning in life. The experimental induction of a sense of belongingness subsequently increased the weight given by participants to belonging as a source of meaning in life, whereas social exclusion decreased the weight given to belongingness in meaning in life (Zhang et al., 2018). In the present context, one could expect that dominant individuals, who are often able to persuade and influence others (Schmid Mast & Cousin, 2013), may have heightened perceptions of social support and feelings of belongingness, which could elevate their meaning in life.

1.2. Dominance, meaning in life, and communion

Dominance is the tendency to assert oneself or impose one's will (Winter, 2010), often through assertive and fearless behavior (Barrick et al., 2002; Buss & Craik, 1980; Maner & Case, 2016; Winter, 2010). Dominant individuals have a strong desire to attain power and status, and many rise in social hierarchies where they occupy power and leadership positions (Anderson & Kilduff, 2009; Judge et al., 2002; Keltner et al., 2003; Kim & Guinote, 2021; Mazur & Booth, 1998; Schmid Mast, 2002).

Dominance activates the dominance behavioral system, or DBS (Johnson et al., 2012). The DBS entails biological, psychological, and behavioral components that aid the goal of social influence and control over others. Thus, it ensures rapid learning of actions that advance control and influence in social contexts (Fournier et al., 2002). Dominant individuals can draw on multiple strategies to attain their desires linked to personal and social agendas, while social power per se may not be their main aim (Pellegrini, 2002).

Dominance could increase meaning in life through various social mechanisms, in particular through perceptions of belongingness and social support. Dominant individuals could experience elevated belongingness due to their outgoing character and extended social networks. Dominance is a facet of extraversion and facilitates social connections (Costa & Macrae, 1992). Those who are dominant are more networked, both spontaneously and strategically in order to form alliances (Maner & Case, 2016; Mazur & Booth, 1998). They are self-assured and can use fear-evoking strategies through aggression and coercion (Cheng et al., 2013) or use prosocial strategies linked to cooperation, forming reciprocal alliances, and displaying prestige-related behaviors (Hawley, 1999; Johnson et al., 2012; Pellegrini & Bartini, 2001). This conception is described in the interpersonal circumplex model (Wiggins, 1979) in two orthogonal dimensions, dominance (from assured-dominant to unassured-submissive) and affiliation (from warm-agreeable to cold-hearted-hostile). Aggressive and prosocial behaviors among dominant individuals are common among children and adolescents (e.g., Choi et al., 2011; Hawley, 1999) and in animal hierarchies. For instance, a social network analysis of dyadic and group interactions has revealed that dominant chimpanzees – who have greater access to resources (food, space, sexual partners) - have larger networks in grooming clicks and can be socially more connected both through agonism and affiliation (Funkhouser et al., 2018). Similarly, dominant preschool children typically gain social connections even when they exhibit forceful behavior. They are often the centre of attention and are liked due to their higher energy levels and outgoing character (Choi et al., 2011; Hawley, 1999).

Actual power is negatively associated with the experience of loneliness (Waytz et al., 2015). Furthermore, having a sense of power, which often accompanies dominance, is related to perceived social support and consequently to reduced feelings of loneliness (Cai et al., 2021). Dominant individuals could have elevated perceptions of social support linked to their centrality and disproportionate social influence. As they speak more in social settings, show less hesitance, and are socially skilled (Schmid Mast, 2002), dominant people frequently influence others by giving the impression that they are competent (Anderson & Kilduff, 2009). Furthermore, dominant individuals display more eye contact while speaking compared to listening, a pattern that is reversed for submissive individuals (Dittmann, 1972; Dovidio & Ellyson, 1985; Hall et al., 2005; Judge et al., 2002; Keltner et al., 2008). In so doing, dominant individuals more easily capture the attention of their audience, gaining centrality in social relations.

In the present research, we describe how dominance serves the development and maintenance of relationships. We outline the sense of belongingness in those who are dominant and demonstrate that this experience is usually associated with a sense of meaning in life. We further describe that the relationship between dominance and a sense of belongingness is at least partly rooted in the perceived support that

dominant individuals glean from interactions with others. We tested the predictive value of dominance for both the sense of belongingness and meaning in life in a series of three studies.

1.3. The current research

We investigated the relationship between dominance, perceived social support, a sense of belongingness, and a sense of meaning in life, predicting that dominance instills a sense of meaning in life via subjective social support and a sense of belongingness. Studies 1 and 3 were cross-sectional studies and Study 2 was a cross-lagged panel study. In Studies 1 and 2, we investigated whether dominance significantly predicted increased meaning in life via belongingness (i.e., an indirect relationship). Study 3 further investigated the role of perceived social support. We hypothesised that dominance would increase perceived social support as well as belongingness, that perceived social support would contribute to the experience of belongingness, and that both social support and belongingness would give rise to meaning in life in a serial indirect manner.

Dominance is associated with several traits and dispositions, such as extraversion, the Dark Triad (narcissism, sub-clinical psychopathy, and Machiavellianism), and self-esteem (Leary et al., 2001; Rauthmann & Kolar, 2013) that can affect meaning in life. We investigated if dominance is associated with increased meaning in life via enhanced perceptions of social support and belongingess independently of other meaning sources, self-enhancement, and dark, manipulative tendencies that chacterise some dominant individuals. Although dominance is related to extraversion, it should have unique effects on meaning in life independently of extraversion. Thus, we examined and ruled out the roles of such factors in the association between dominance, social support, belongingness, and meaning in life in some studies.

2. Study 1

Study 1 was a cross-sectional study where we investigated the relationships between dominance, belongingness, and meaning in life. Our hypothesis was that dominance would significantly predict increased meaning in life via greater levels of belongingness (e.g., a significant indirect relationship). We considered and controlled for free will beliefs in our model, given the relationships between free will beliefs with belongingness and meaning (Moynihan et al., 2017) and variables related to dominance in previous research (e.g., Crescioni et al., 2016; Feldman et al., 2016; Feldman et al., 2018; Lynn et al., 2014; Stillman et al., 2010).

2.1. Participants and design

Two hundred and fourteen participants were recruited from *Prolific Academic*, an online data collection platform where participants can complete research studies for monetary compensation. All participants were residents of the Republic of Ireland or the United Kingdom. Fourteen participants were excluded for failing an attention check item, and one participant was excluded for not confirming that they would give their best answers in the surveys in a quality control item. This left a useable sample of 199 participants (M_{age} = 32.68, SD = 11.26, *age range* = 18–70; 149 women, 50 men). Participants were remunerated £0.42 GBP. A sensitivity power analysis was conducted (Schoemann et al., 2017, 10,000 replications with 20,000 Monte-Carlo draws, assuming a type-I error of α = 0.05, two-tailed). With a power of 0.90, our sample size allowed us to detect in the most comprehensive analysis (a mediation analysis) correlations of 0.30 or greater.

2.2. Materials and procedure

Participants gave their informed consent and reported demographics. Next, they completed measures of dominance, belongingness, meaning in life, and free will beliefs in random order. Dominance was measured using the dominance subscale of the achievement motivation scale (Cassidy & Lynn, 1989), which consists of 7 items (e.g., "I like to give orders and get things going"; 1 = *strongly disagree*, 5 = *strongly agree*; M = 3.26, SD = 0.78, α = 0.85). Belongingness was measured with the general belongingness scale (Malone et al., 2012) and consists of 12 items (e.g., "When I am with other people, I feel included; 1 = *strongly disagree*, 7 = *strongly agree*; M = 4.92, SD = 1.27, α = .95). Meaning in life was measured using the presence of meaning in life subscale from the meaning in life questionnaire (MLQ, Steger et al., 2006), consisting of 5 items (e.g., "My life has a clear sense of purpose"; 1 = *absolutely untrue*, 7 = *absolutely true*; M = 4.45, SD = 1.46, α = 0.92). This questionnaire has two subscales, one that captures the presence of meaning in life, used here, and another that captures the search for meaning in life, which was not relevant for our purposes. Free will beliefs were measured using the free will subscale of the free will and determinism and determinism scale – plus (Paulhus & Carey, 2011) and consists of 7 items (e.g., "People have complete control over the decisions they make"; 1 = *strongly disagree*, 7 = *strongly agree*; M = 4.84, SD = 1.03, α = 0.81). Afterwards, participants were debriefed, thanked, and rewarded.

2.3. Results and discussion

2.3.1. Indirect relationship

We conducted a mediation analysis using Hayes's (2018, Model 4) PROCESS macro. Scores were standardised for each construct. Dominance was entered as the predictor variable in the model, belongingness was entered as the mediator, and meaning in life was entered as the outcome variable. The indirect relationship was estimated using 10,000 bias-corrected bootstraps. As expected, we found a significant indirect relationship between dominance and increased meaning in life via greater levels of belongingness, ab = 0.14, SE = 0.04, 95 % CI [0.05, 0.22]. The direct relationship maintained significance, B = 0.17, SE = 0.06, p = .003 (Fig. 1). The indirect relationship maintained significance controlling for free will beliefs, ab = 0.11, SE = 0.05, 95 % CI [0.03, 0.21]. The direct relationship also maintained significance, B = 0.16, SE = 0.06, p = .004. Zero-order correlations between the constructs are reported in Table 1.

In Study 1, we showed that dominance significantly predicted increased meaning in life via greater levels of belongingness, consistent with our hypothesis. In Study 2, we aimed to replicate these results using a cross-lagged panel design.

3. Study 2

In Study 1, we demonstrated a significant indirect relationship between dominance and increased meaning in life via greater levels of belongingness. In Study 2, we aimed to replicate this finding using a cross-lagged panel design consisting of two waves. We chose this research design to gain some evidence for causal relationships between the constructs. In Study 2, we also included a measure of free will beliefs and the Dark Triad personality composite as controls (given the Dark Triad's relationship to dominance; Jones & Figueredo, 2013; Rauthmann & Kolar, 2013; Semenya & Honey, 2015).

3.1. Participants and design

In Wave 1, 172 participants were recruited from *Prolific Academic*. All participants were residents of the Republic of Ireland or the United Kingdom. Five participants were excluded for failing an attention check item, leaving a useable sample of 167 participants (M_{age} = 35.04, SD = 14.07, *age range* = 18–80; 118 women, 47 men, 2 other). Participants were compensated with £0.42 GBP for Wave 1. A sensitivity power analysis was conducted (Schoemann et al., 2017, 10,000 replications with 20,000 Monte-Carlo draws, assuming a type-I error of α = 0.05,

$B = 0.17*$ (Indirect Relationship: $ab = 0.14$, [0.05, 0.22])

*$p < .005$

**$p < .001$
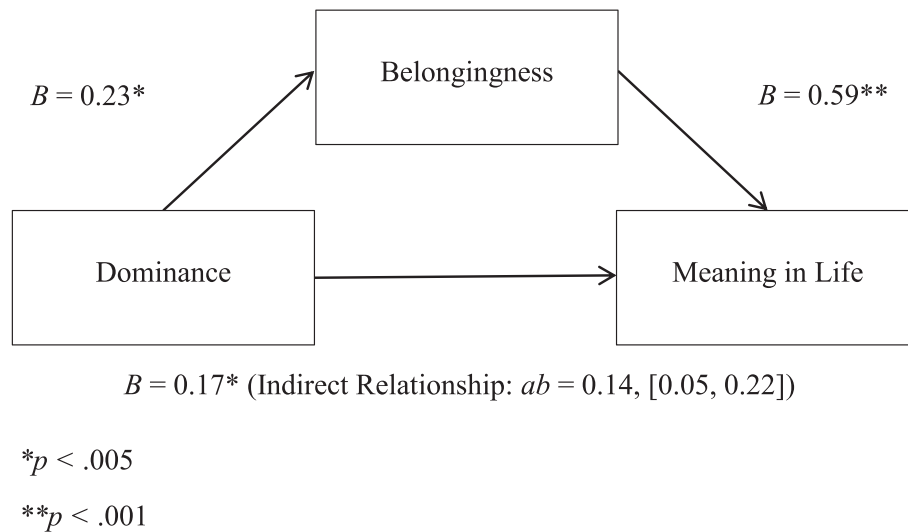
Fig. 1. Conceptual representation of indirect relationship using meaning in life as outcome variable (Study 1).
Note: Relationship between dominance and meaning in life, significantly mediated by belongingness.

Table 1
Zero-order correlations between dominance, belongingness, and meaning in life (Study 1).

	Dominance	Belongingness	Meaning in life
Dominance		0.23*	0.30*
Belongingness			0.63*
Meaning in life			

Note. * = $p \leq .001$.

two-tailed). With a power of 0.90, our sample size allowed us to detect in the most comprehensive analysis (a mediation analysis) correlations of 0.34 or greater using data collected from Wave 1.

In Wave 2, 161 participants from Wave 1's sample completed the same questionnaires four weeks later. Of those participants, one failed an attention check item, leaving a useable sample of 160 participants ($M_{age} = 35.36$, $SD = 13.98$, *age range* = 18–80; 113 women, 45 men, 2 other). Participants were compensated an additional £0.42 GBP for participating in Wave 2. A sensitivity power analysis was conducted (Schoemann et al., 2017, 10,000 replications with 20,000 Monte-Carlo draws, assuming a type-I error of $\alpha = 0.05$, two-tailed). With a power of 0.90, our sample size allowed us to detect in the most comprehensive analysis (a mediation analysis) correlations of 0.34 or greater using data from Wave 2.

3.2. Materials and procedure

In Wave 1, participants were invited to take part in a two-wave study. Participants gave their informed consent and reported demographics. Next, measures of dominance, belongingness, meaning in life, free will beliefs, and the Dark Triad were presented to participants in random order. As in Study 1, dominance was measured using the dominance subscale of the achievement motivation scale (Cassidy & Lynn, 1989; 1 = *strongly disagree*, 5 = *strongly agree*; $M = 3.04$, $SD = 0.82$, $\alpha = 0.86$). Belongingness was measured with the general belongingness scale (Malone et al., 2012; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 4.99$, $SD = 1.09$, $\alpha = 0.94$). Meaning in life was measured using the presence of meaning in life subscale from the meaning in life questionnaire (Steger et al., 2006; 1 = *absolutely untrue*, 7 = *absolutely true*; $M = 4.74$, $SD = 1.27$, $\alpha = 0.92$). Free will beliefs were measured using the free will subscale of the free will and determinism and determinism scale – plus (1 = *strongly disagree*, 7 = *strongly agree*; $M = 4.80$, $SD = 0.93$, $\alpha = 0.78$; Paulhus & Carey, 2011). The Dark Triad was measured using the

Dirty Dozen 12-item scale (Jonason & Webster, 2010; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 2.88$, $SD = 1.05$, $\alpha = 0.89$). Four items measure Machiavellianism (e.g., "I tend to manipulate others to get my way"), psychopathy (e.g., "I tend to lack remorse"), and narcissism (e.g., "I tend to seek prestige or status") each. Afterwards, participants were thanked, rewarded, and reminded that they would be invited to complete the second part of the study in a few weeks.

Four weeks later, participants from Wave 1 were invited to complete the same measures for Wave 2. A few days in advance, an e-mail on *Prolific Academic* was sent to remind participants about the second phase of the study. In Wave 2, participants again gave their informed consent and reported demographics. (Participants' responses from Wave 1 were matched to their responses in Wave 2 using their ID's from *Prolific Academic*). Next, the same measures of dominance, belongingness, meaning in life, free will beliefs, and the Dark Triad were presented to participants in random order. Again, these were the dominance subscale of the achievement motivation scale ($M = 3.01$, $SD = 0.83$, $\alpha = 0.88$; Cassidy & Lynn, 1989), the general belongingness scale ($M = 5.03$, $SD = 1.12$, $\alpha = 0.95$; Malone et al., 2012), the presence of meaning in life subscale from the meaning in life questionnaire ($M = 4.66$, $SD = 1.24$, $\alpha = 0.92$; Steger et al., 2006), the free will beliefs subscale of the free will and determinism scale – plus ($M = 4.80$, $SD = 0.92$, $\alpha = 0.80$; Paulhus & Carey, 2011), and the *Dirty Dozen* measure of the Dark Triad ($M = 2.86$, $SD = 1.04$, $\alpha = 0.89$; Jonason & Webster, 2010). Afterwards, participants were debriefed, thanked, and rewarded.

3.3. Results and discussion

3.3.1. Wave 1 indirect relationship

We conducted a mediation analysis using Hayes's (2018, Model 4) PROCESS macro. Scores were standardised for each construct. Dominance was entered as the predictor variable in the model, belongingness was entered as the mediator, and meaning in life was entered as the outcome variable. The indirect relationship was estimated using 10,000 bias-corrected bootstraps. Consistent with Study 1, we found a significant indirect relationship between dominance and increased meaning in life via greater levels of belongingness, $ab = 0.11$, $SE = 0.05$, 95 % CI [0.03, 0.21]. The direct relationship was $B = 0.07$, $SE = 0.07$, $p = .28$ (Fig. 2). Thus, our hypothesis was supported. The indirect relationship maintained significance controlling for both free will beliefs and the Dark Triad composite, $ab = 0.11$, $SE = 0.04$, 95 % CI [0.04, 0.20]. The direct relationship was $B = 0.12$, $SE = 0.07$, $p = .10$. Zero-order correlations between the constructs are reported in Table 2.
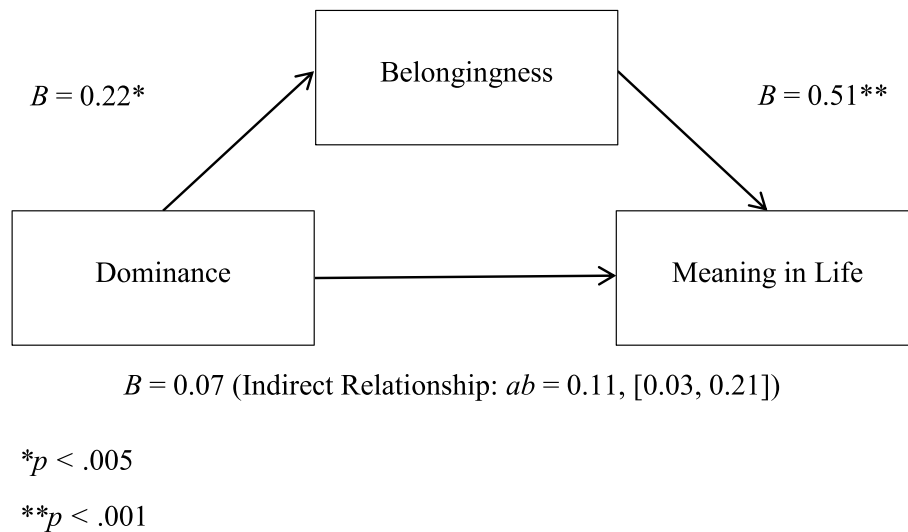
Fig. 2. Conceptual representation of indirect relationship using meaning in life as outcome variable (Study 2, Wave 1).
Note: Relationship between dominance and meaning in life, significantly mediated by belongingness.

Table 2
Zero-order correlations between dominance, belongingness, and meaning in (Study 2: Wave 1).

	Dominance	Belongingness	Meaning in Life
Dominance		0.22**	0.19*
Belongingness			0.51***
Meaning in life			

Note. * = $p \leq .05$, ** = $p \leq .005$, *** = $p \leq .001$.

3.3.2. Wave 2 indirect relationship

Next, we conducted a mediation analysis using Hayes's (2018, Model 4) PROCESS macro. Scores were standardised for each construct. Dominance was entered as the predictor variable in the model, belongingness was entered as the mediator, and meaning in life was entered as the outcome variable. The indirect relationship was estimated using 10,000 bias-corrected bootstraps. Consistent with Wave 1, there was a significant indirect relationship between dominance and increased meaning in life via greater levels of belongingness, $ab = 0.13$, $SE = 0.05$, 95 % CI [0.03, 0.23]. The direct relationship was $B = 0.10$, $SE = 0.07$, $p = .13$ (Fig. 3). The indirect relationship maintained significance controlling for free will beliefs and the Dark Triad, $ab = 0.15$, $SE = 0.04$, 95 % CI [0.08, 0.24]. The direct relationship was marginal, $B = 0.13$, $SE = 0.07$, $p = .08$. Zero-order correlations between the constructs are reported in Table 3.

3.3.3. Indirect relationship

Next, we investigated the longitudinal relationships between the variables. Specifically, we conducted an indirect serial mediation analysis using Hayes's (2018, Model 6) PROCESS macro. In this model, dominance (Wave 1) was entered as the predictor variable, belongingness (Wave 1), meaning in life (Wave 1), and belongingness (Wave 2) were entered as the mediators, and meaning in life (Wave 2) was entered as the outcome variable. In this model, we found two significant serial indirect relationships consistent with our hypothesis. First, we found that dominance (Wave 1) significantly predicted increased meaning in life (Wave 2) via greater belongingness and meaning in life, both measured at Wave 1, $a1db2 = 0.07$, $SE = 0.03$, 95 % CI [0.01, 0.14]. Simultaneously, we also found that dominance significantly predicted increased meaning in life (Wave 2) via belongingness, measured at Waves 1 and 2, respectively, $a1db2 = 0.05$, $SE = 0.03$, 95 % CI [0.004, 0.01]. The direct relationship was $B = 0.06$, $SE = 0.05$, $p = .23$. Both serial indirect relationships were estimated using 10,000 bias-corrected

bootsraps. None of the other (5) indirect effects of the Model 6 path analysis were significant.

In summary, we replicated our findings in Study 2 such that dominance significantly predicted increased meaning in life via greater levels of belongingness at both time points. Further, the results are consistent with the argument of a causal relationship between the constructs such that dominance, measured at Wave 1, predicted increased meaning in life, at Wave 2, through two paths. Firstly, this path was significant via belongingness and meaning in life scores, measured at Wave 1. The path was also significant via belongingness, measured at Waves 1 and 2, respectively. Given that no other indirect effects reached the statistical level of significance, we conclude that the core model of dominance predicting meaning in life via belongingness is supported. Interestingly, dominance at Wave 1 predicted meaning in life in Wave 2 in two ways, but always in the predicted order of the psychological constructs involved. Further, the relationship between dominance at Wave 1 and meaning in life at Wave 2 is only significant with belongingness at Wave 1 as the first mediator. This indicates that dominance as a predictor variable is more likely to have long-term consequences via temporarily near (not distant) belongingness. This supports the notion of the centrality of belongingness experiences (e.g., Baumeister & Leary, 1995). In Study 3, we aimed to expand our model by incorporating perceived social support as a supplementary mediator.

4. Study 3

In Study 3, we investigated the relationships between dominance, perceived social support, use of social support, belongingness, and meaning in life in a cross-sectional study. Our hypothesis was that there would be a significant indirect serial relationship between dominance and increased meaning in life via perceived social support/use of social support and belongingness. Again, dominant individuals thrive in communion with others (e.g., Anderson & Kilduff, 2009; Guinote & Chen, 2018; Keltner et al., 2003; Mazur & Booth, 1998; Schmid Mast, 2002) and are motivated to influence others through assertive and confident behavior (Buss & Craik, 1980; Gough, 1987; Wiggins, 1979). Further, perceptions of social support and actual social support increase people's sense of belongingness and meaning in life (Krause, 2007; Schnell & Becker, 2006; Vargas-Madriz & Konishi, 2021; Zumbrunn et al., 2014). In Study 3, we also controlled for free will beliefs, extraversion, self-control, and self-esteem, given these variables' relationships with the key constructs in our model (e.g., Guinote, 2015; Heine et al., 2006; Moynihan et al., 2017). We explored whether dominance
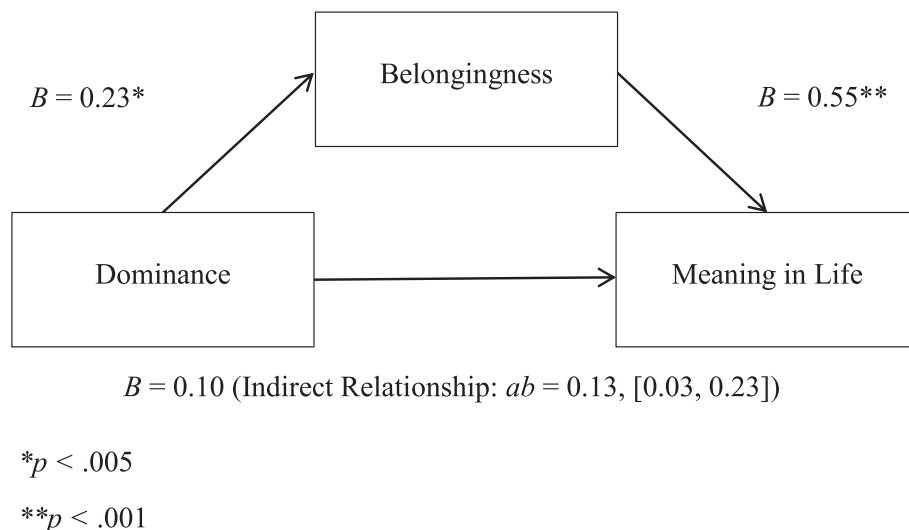
$B = 0.10$ (Indirect Relationship: $ab = 0.13$, [0.03, 0.23])

*p < .005

**p < .001

Fig. 3. Conceptual representation of indirect relationship using meaning in life as outcome variable (Study 2, Wave 2).
Note: Relationship between dominance and meaning in life, significantly mediated by belongingness.

Table 3
Zero-order correlations between dominance, belongingness, and meaning in life (Study 2: Wave 2).

	Dominance	Belongingness	Meaning in life
Dominance		0.23*	0.23*
Belongingness			0.57**
Meaning in life			

Note. $* = p \leq .005$, $** = p \leq .001$.

was related to perceptions of control or manipulation of social support (use of social support), which could contribute to meaning in life via belongingness. In this latter conception, dominant individuals would grab social support rather than be afforded social support.

4.1. Participants and design

Four hundred and thirteen students in the first and third authors' home institutions were recruited. Thirty-four participants were excluded for failing an attention check item, leaving a useable sample of 379 participants ($M_{age} = 19.57$, $SD = 3.27$, age range = 18–49; 283 women, 95 men, 1 other). Some participants received course credit as remuneration. Based on Studies 1 and 2, an a-priori power analysis showed that we required at least 199 participants to achieve a statistical power of 0.90 for the simple mediation model tested in Studies 1 and 2.[1] A sensitivity power analysis was also conducted (Schoemann et al., 2017, 10,000 replications with 20,000 Monte-Carlo draws, assuming a type-I error of $\alpha = 0.05$, two-tailed). With a power of 0.90, our sample size allowed us to detect in the most comprehensive analysis (a serial mediation analysis) correlations of 0.26 or greater. We pre-registered our study on AsPredicted.org (https://aspredicted.org/blind.php?x=BND_4PW).

4.2. Measures and procedure

Participants gave their informed consent and reported demographics. Next, measures of dominance, social support, belongingness, and meaning in life were presented to participants in random

order. As in Studies 1 and 2, dominance was measured using the dominance subscale of the achievement motivation scale (e.g., "People take notice of what I say"; 1 = *strongly disagree*, 5 = *strongly agree*; $M = 3.10$, $SD = 0.85$, $\alpha = 0.85$; Cassidy & Lynn, 1989). Belongingness was measured with the general belongingness scale (e.g., "I feel accepted by others; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 5.03$, $SD = 1.07$, $\alpha = .93$; Malone et al., 2012). Meaning in life was measured using the presence of meaning in life subscale from the meaning in life questionnaire (e.g., "I have a good sense of what makes my life meaningful"; 1 = *absolutely untrue*, 7 = *absolutely true*; $M = 4.20$, $SD = 1.38$, $\alpha = 0.89$; Steger et al., 2006). Perceived social support was measured using the multidimensional scale of perceived social support (Zimet et al., 1988), which consists of 12 items (e.g., "I can talk about my problems with my family"; 1 = *very strongly disagree*, 7 = *very strongly agree*; $M = 4.08$, $SD = 0.84$, $\alpha = 0.90$). Use of social support was measured using a scale where participants rated their subjective sense of power over social support (Guinote & Cai, n.d.), which consists of 13 items (e.g., "At a party, I can easily make new friends"; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 5.44$, $SD = 1.02$, $\alpha = 0.81$). As in Studies 1 and 2, free will beliefs were also measured using the free will subscale of the free will and determinism scale – plus (e.g., "People can overcome any obstacles if they truly want to"; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 4.47$, $SD = 0.93$, $\alpha = 0.75$). Extraversion was measured using the extraversion subscale of the Big 5 inventory – short form (John & Srivastava, 1999), which consists of 8 items (e.g., "I see myself as someone who is outgoing, sociable"; 1 = *disagree strongly*, 5 = *agree strongly*; $M = 3.15$, $SD = 0.79$, $\alpha = 0.83$). Self-control was measured using Lachman and Weaver's (1998) sense of control scale, consisting of 12 items (e.g., "I can do just about anything I really set my mind to"; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 4.57$, $SD = 0.84$, $\alpha = 0.82$). Self-esteem was measured using Rosenberg's (1979) self-esteem scale, which consists of 10 items (e.g., "I take a positive attitude toward myself"; 1 = *strongly disagree*, 4 = *strongly agree*; $M = 2.63$, $SD = 0.54$, $\alpha = 0.89$). Afterwards, participants were debriefed, thanked, and rewarded.

4.3. Results and discussion

4.3.1. Indirect relationship

We investigated if dominance significantly predicted increased meaning in life via belongingness using Hayes's (2018, Model 4) PROCESS macro. Scores were standardised for each construct. Dominance was entered as the predictor variable in the model, belongingness was entered as the mediator, and meaning in life was entered as the outcome

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[1] We found a significant indirect relationship between dominance and meaning in life via belongingness, using the first 199 participants' data in our sample, $ab = 0.09$, $SE = 0.04$, 95 % CI [0.02, 0.16].

variable. The indirect relationship was estimated using 10,000 bias-corrected bootstraps. Consistent with Studies 1 and 2, there was a significant indirect relationship between dominance and increased meaning in life via increased belongingness, $ab = 0.11$, $SE = 0.03$, 95 % CI [0.06, 0.16]. The direct relationship was not significant, $B = 0.05$, $SE = 0.05$, $p = .27$ (Fig. 4). (The indirect relationship became non-significant, controlling for perceived social support, free will beliefs, extraversion, self-control, self-esteem, and use of social support, $ab = 0.0003$, $SE = 0.004$, 95 % CI [−0.008, 0.01]. The direct relationship was $B = −0.06$, $SE = 0.05$, $p = .21$).

4.3.2. Indirect serial relationship

Finally, we conducted a serial mediation analysis (Hayes, 2018, Model 6). Dominance was entered as the predictor variable, perceived social support was the first mediator, belongingness was the second mediator, and meaning in life was entered as the outcome variable. Scores were standardised for each construct. The indirect serial relationship was estimated using 10,000 bias-corrected bootstraps. As predicted, there was a significant serial indirect relationship between dominance and increased meaning in life via increased perceived social support and belongingness, $a_1db_2 = 0.07$, $SE = 0.02$, 95 % CI [0.04, 0.10]. Thus, our hypothesis was supported. The direct relationship was $B = −0.08$, $SE = 0.05$, $p = .12$ (Fig. 5). (The serial indirect relationship became marginally significant controlling for free will beliefs, extraversion, self-control, self-esteem, and use of social support, $a_1db_2 = 0.001$, $SE = 0.002$, 95 % CI [−0.002, 0.005]. The direct relationship was $B = −0.06$, $SE = 0.05$, $p = .21$). Importantly, dominance was associated with increased belongingness via elevated perceptions of social support (Hayes, 2018, Model 4), $ab = 0.24$, $SE = 0.04$, 95 % CI [0.18, 0.31], direct relationship: $B = 0.004$, $SE = 0.05$, $p = .94$. Thus, one reason why dominant individuals show greater belongingness is that they perceive greater social support. Together, the findings support our hypotheses. The indirect serial relationship between dominance and meaning in life via use of social support and belongingness was marginally significant, $a_1db_2 = 0.02$, $SE = 0.01$, 95 % CI [−0.002, 0.05]. In summary, the relationship between dominance and meaning in life is, in part, explained by perceptions of naturally occurring social support available. We advise further research on how use of social support can play a role in our proposed model. (Zero-order correlations between the key constructs in Study 3 are reported in Table 4).

5. General discussion

Dominant individuals are outgoing and spend a great deal of time and effort in social relationships. They help define collective agendas with conviction, enjoying disproportionate influence over others. Many rise to positions of status and power, including in high echelons of organisations, religious institutions, businesses, and the political arena (Guinote, 2017; Kim & Guinote, 2021; Winter, 1973). The larger networks and capacity for influence typical for dominant individuals could contribute to perceptions of being the recipient of social support and to having a sense of belongingness in social settings. This, in turn, should be conducive to an elevated sense of meaning in life among dominant individuals (see Heine et al., 2006).

These hypotheses were tested in two cross-sectional studies and a cross-lagged panel study. Across these studies, dominance significantly predicted belongingness and elevated meaning in life. Consistent with past research (Baumeister & Leary, 1995; Verhagen et al., 2018), belongingness reliably predicted meaning in life, and this relationship was consistently stronger than the relationship between dominance and meaning in life. Furthermore, in Study 1, dominance boosted meaning in life through greater levels of belongingness. Employing a cross-lagged design, Study 2 replicated these findings across time and found support for a causal relationship between dominance at Wave 1 and meaning in life at Wave 2, driven by elevated belongingness and meaning in life at Wave 1. The relationship was also significantly explained via belongingness scores at Waves 1 and 2. Study 3 corroborated the relationship between dominance, belongingness, and meaning in life. This study also demonstrated that elevated belongingness among dominant individuals derives from perceptions of increased social support – the notion that one is backed up, popular, and supported by others. Both perceived social support and belongingness contributed to elevated meaning in life among dominant individuals.

These findings provide new insights into dispositional antecedents of social support and belongingness, as well as the subjective experiences of dominant individuals and their relationships. They show that perceptions of social support have far-reaching consequences, fostering a sense of belongingness and meaning in life. This is consistent with evidence that social support is beneficial for well-being even when it is not actualised (Taylor, 2011). At the same time, the findings show that dominance can elicit perceptions of social support. Dominant individuals have been portrayed as being competitive, forceful, and aggressive, with little regard for others (Mehta et al., 2008; Pellegrini et al., 2007). However, the evidence is inconsistent. Dominant individuals are often at the forefront of prosocial and group-serving behavior (Maner & Mead, 2010). Situational pressures (e.g., the presence of an outgroup) and individual differences can shape the motives and proself versus prosocial orientation of those who are dominant (Schmid Mast & Cousin, 2013; Wiggins, 1979). Crucially, dominance is a facet of extraversion (Costa & Macrae, 1992). Dominant individuals
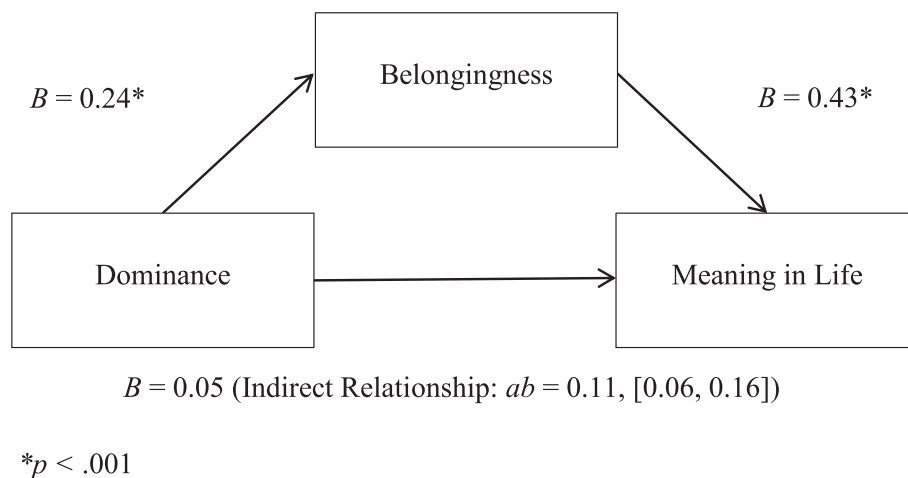

$B = 0.05$ (Indirect Relationship: $ab = 0.11$, [0.06, 0.16])

*p < .001

Fig. 4. Conceptual representation of indirect relationship using meaning in life as outcome variable.
Note: Relationship between dominance and meaning in life, significantly mediated by belongingness.
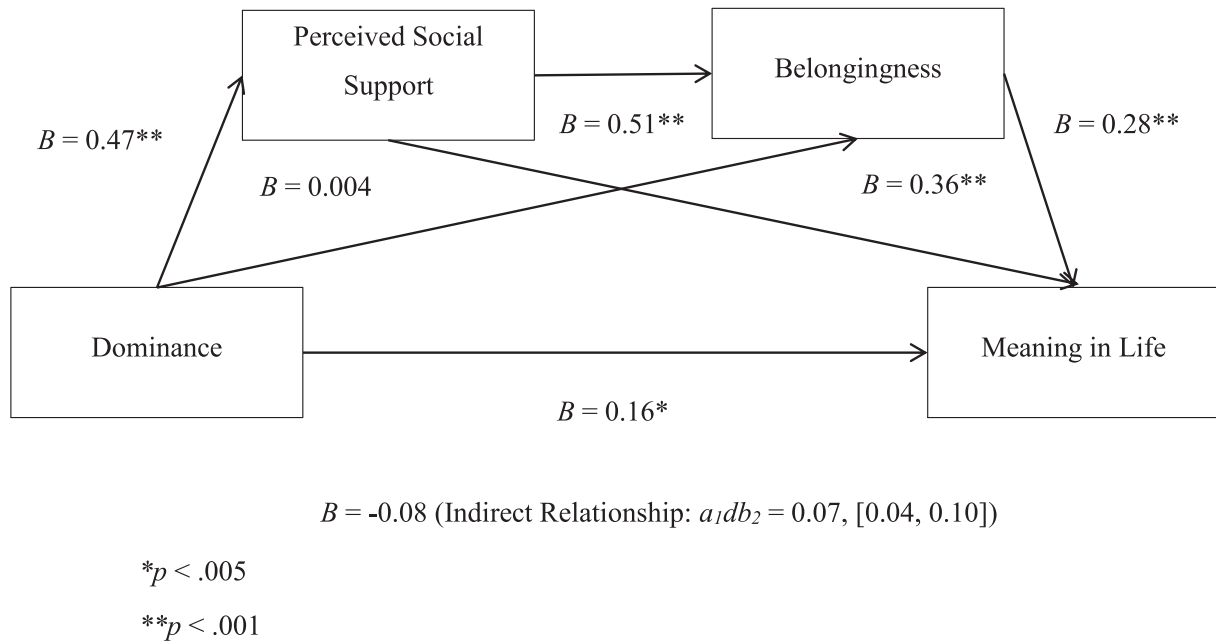
Fig. 5. Conceptual representation of indirect relationship using meaning in life as outcome variable.
Note: Relationship between dominance and meaning in life, significantly mediated by perceived social support and belongingness.

Table 4
Zero-order correlations between dominance, perceived social support, belongingness, and meaning in life (Study 3).

	Dominance	Perceived social support	Use of social support	Belongingness	Meaning in life
Dominance		0.47**	0.09	0.25**	0.16*
Perceived social support			0.37**	0.51**	0.46**
Use of social support				0.63**	0.36**
Belongingness					0.44**
Meaning in life					

Note. * = $p \leq .005$, ** = $p \leq .001$.

enjoy larger social networks compared to other individuals (Winter, 2010) and are perceived both as extraverted and influential (Anderson & Kilduff, 2009).

The present findings highlight the relational nature of dominance and how it adds to a sense of meaning. This is important because dominance often serves groups (e.g., Anderson & Kilduff, 2009; Guinote & Chen, 2018) and a sense of meaning in life seems to be an existential reinforcement for the behavior that dominant individuals are likely to display. The contribution of this research is mainly the emphasis on dominance as a socially functional variable (without denying dysfunctional forms of dominance) and how dominance is linked to existential experiences in humans via perceptions of social relationships: namely social support and belongingness.

5.1. Limitations and future directions

This research focused on the link between dominance and meaning in life. It did not consider potential boundary conditions such as successful or unsuccessful social behavior of dominant individuals, the aggressive or prosocial strategies that they use, and social responses to that behavior. Dominance can be associated with multiple motives, such as the desire for power and resources or the advancement of collective agendas in the form of leadership (Suessenbach et al., 2019). Future research should embed the notions of our research in larger frameworks on the functionality of dominance. In addition, it may also be interesting to measure actual social support in our proposed model in future (e.g., Cai et al., 2021).

Although our research includes a longitudinal design (Study 2) that

allows for some plausible inferences about causality, all of the research is essentially correlational and thus does not allow for clear-cut causal inferences. We chose these designs because we focus on dominance as an individual differences variable. Future research could use experimental designs that introduce variations in the social context that affect the propensity for dominance, and examine changes in the indirect relationships we tested. It is possible that differential activations of dominance within the person would show similar patterns as those reported in our research.

Our approach further supports the notion that dominance might be socially useful (Maner & Mead, 2010) at least in some respect. It also suggests that although primates display dominance, for human beings, dominance might lead to a sense of meaning in life, which is associated with well-being (Taylor, 2011). Therefore, dominance might have useful individual and social functions that can be harnessed in individual and social interventions.

5.2. Conclusions

Our research suggests that dominance can be conceptualised as a psychological variable with rewarding existential experiences. By materialising in the social world, dominance leads to perceived social support and a sense of belongingness with others and, through that, contributes to a sense of meaning in life. This research thus further develops the notion that dominance can be individually rewarding via positive perceptions of relationships with others.

CRediT authorship contribution statement

Andrew B. Moynihan: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Project administration. **Ana Guinote:** Conceptualization, Methodology, Resources, Writing – original draft, Writing – review & editing. **Eric R. Igou:** Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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