Power in everyday life

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How does power manifest itself in everyday life? Using experience-sampling methodology, we investigated the prevalence, sources, and correlates of power in people's natural environments. Participants experienced power-relevant situations regularly, though not frequently. High power was not restricted to a limited few: almost half of the sample reported experiencing high-power positions. Positional power and subjective feelings of power were strongly related but had unique relations with several individual difference measures and independent effects on participants' affect, cognition, and interpersonal relations. Subjective feelings of power resulted more from within-participant situational fluctuation, such as the social roles participants held at different times, than from stable differences between people. Our data supported some theoretical predictions about power's effects on affect, cognition, and interpersonal relations, but qualified others, particularly highlighting the role of responsibility in power's effects. Although the power literature has focused on high power, we found stronger effects of low power than high power.

positional power | subjective feelings of power | experience sampling | social roles | ecological setting

Power—asymmetric control over valued resources (1–4)—is a fundamental feature of human relations (5): individuals detect power differences quickly, recall them easily, and often prefer them to equality (6, 7). Although power plays a pivotal role in many aspects of life, from the workplace (1) to the family (8) to romantic relationships (9), little is known empirically about the course of power in everyday life. Without such data, it is unclear how power is experienced by individuals on a daily basis, including basic facts such as whether having or lacking power is a regular or rare occurrence and to what degree individuals fluctuate in their level of power throughout the day.

Surveying the full array of power experiences occurring in real life also allows for a robust test of power theories. Most recent data on the psychological experience of power has focused on workplace environments and experimental power manipulations (10). Although such manipulations allow for causal attributions, the most common ones involve thinking about power (11) or anticipating power differences rather than experiencing them (12). Even when participants experience low- and high-power roles in the laboratory, these roles generally do not involve real decisions or consequential outcomes (13). Because the effects of power are known to change when power involves meaningful interpersonal interactions versus hypothetical scenarios or anticipated interactions (14), and when power differences are experienced as appropriate and legitimate versus arbitrarily assigned (15, 16), it is not a given that theories developed in the experimental laboratory will generalize to real-world power experiences. Furthermore, if power operates in aspects of life beyond work, it is important to determine if theories of power (3, 4) hold true across all these contexts, such as family relationships involving more complicated power dynamics (8).

Thus, the present work aimed both to investigate the prevalence and correlates of power in people's natural environments, and to test hypotheses derived from major theories of power (3, 4) in these settings. To achieve these goals, we used experience sampling (17) to assess people's power perceptions in daily life. Five

times a day for 3 d, more than 200 participants in the United States reported how powerless or powerful they felt and whether they were in a low- or high-power position or no power situation at all, then answered multiple questions about their situation. With these data, we addressed several ecological, empirical, and theoretical issues regarding power.

First, we tested whether power is experienced as a fundamental feature of human interactions by measuring how often individuals reported being in low- and high-power positions. Given that social hierarchies are pervasive (18), we predicted that most participants would report experiencing power dynamics in our brief study period. Because traditional pyramidal hierarchies broaden from top to bottom, we also expected low-power positions would be experienced more frequently than high-power ones.

Second, we explored different types of power. Power may be construed as both a structural variable reflecting a person's position relative to others (4), and a psychological state reflecting a person's subjective experience (19). One popular model of power proposes that a person's position first affects their subjective feelings of power, which then influence behavior (2, 20). However, the consequences of subjective feelings of power may be distinct from positional power (10, 11, 13). Thus, we tested how much positional power and subjective feelings of power were related and whether they had separate, distinguishable effects, or even interacted to predict behavior (21).

Third, we examined variability in experiences of power. Variance in subjective feelings of power can be attributed to stable, individual-difference factors (between-person differences) and to variable, situation-specific factors (within-person differences). Although power is predicted by dispositional attributes (22), suggesting

Significance

Although power is a fundamental part of human relations, little is known about power in daily life. We studied the everyday experience of power by surveying individuals multiple times over 3 d regarding their subjective feelings of power and positional power. Power dynamics were a common, though not constant, experience. Rather than power being concentrated among a few individuals, almost half of participants reported sometimes holding high-power positions. People's feelings of power did not always map onto the positions they held. Most variability in power was related to people's changing situations rather than their stable traits. Low power negatively affected mood and cognition. Contrary to negative stereotypes of powerholders, higher power was associated with greater feelings of responsibility.

individual stability (23), it is also defined in relation to particular relationships, and the attributes leading to power differ across social contexts (24), suggesting situational variability; therefore, we predicted both factors would play a role. Thus, we explored both specific individual differences and situational characteristics.

Fourth, what kinds of people are more likely to be in low- versus high-power positions, or to feel powerful? Being male (25, 26), middle-aged (versus younger or older) (26), White (26), and of a higher social class (27) have all been associated with higher power, so we collected relevant demographic data. Additionally, we collected three hierarchy-oriented dispositional measures likely to be related to experiences of power. Individuals with a higher personal sense of power (PSP) (19) tend to hold higher-power positions. Having a higher social dominance orientation (SDO) (28), indicated by a preference for group-based dominance and inequality, has also been associated with holding higher-power positions (29). Although right-wing authoritarianism (RWA)—a combination of authoritarian submission, authoritarian aggression, and conventionalism (30)—seems logically related to power, no previous research has explored its association with the experience of power. Additionally, given our repeated sampling of participants, we assessed whether the amount of variability in power feelings was affected by these variables.

Fifth, to explore situational effects, we assessed how different social roles related to power. Our repeated sampling of participants allowed us to assess their experience as they held roles with obvious relations to power (e.g., subordinate colleague), as well as more ambiguous roles encompassing both low- and high-power experiences, such as parent or romantic partner (21). Past research has found that in the latter roles individuals sometimes report feeling powerless even when by objective measures they are in a high-power position (5).

Finally, recent psychological theorizing and research on power has focused on power's consequences (3, 4, 10) for affect, cognition, and interpersonal relations, so we tried to replicate these results in our ecological setting. We tested whether power related to happiness, overall mood, and stress. The approach-inhibition theory of power (3) posits that high power leads to more positive affect, and low power to more negative affect and stress. Evidence for these effects has been mixed (12, 31) and may depend on having meaningful interpersonal manifestations of power (14), a feature of our experience-sampling methodology. For cognition, we tested whether power related to mental resource depletion. Although Fiske (32) posited that high power leads to attentional overload, recent research suggests low power reduces mental capacity (12), whereas high power improves self-regulation (33, 34), as predicted by the social distance theory of power (4). Finally, we tested the interpersonal effects of power by measuring how much participants felt close to and wanted to interact with these others, and how much they felt responsible for them. The social distance theory of power (4) posits that because high-power individuals are less dependent on low-power individuals than vice versa, high-power individuals should feel more distant from low-power individuals and less motivated to affiliate with them (35, 36). The theory also posits that feelings of responsibility for others may shrink experienced social distance, and thus alter power's effects. We also measured how much participants felt respected by others to examine the association between power and status, a related but distinct concept (37).

Results

Because experience-sampling data are nested (observations within persons), all analyses, except descriptive, Poisson, and contingency analyses, used multilevel modeling (38) (see *SI Results* for details).

Both Low- and High-Power Positions Were Common. Out of the 2,502 total responses, 13.7% involved someone else having power over a participant, and 10.0% involved a participant having power over someone else. Over the 15 sampling occasions of the 3 study days, participants reported being more often in a low-power position (mean = 1.64, SD = 2.21, range 0–13) than in a high-power position (mean = 1.19, SD = 1.96, range 0–12), $t(209) = 2.12$, $P = 0.035$, $d = 0.22$. An average of 2.82 power-relevant (i.e., low- or high-power) situations (SD = 2.80, range 0–13) were reported (Fig. S1). Most participants (82.9%) experienced at least one low- or high-power position during the 3 d: 27.1% of participants experienced both low- and high-power positions, 35.2% experienced only low-power positions, and 20.5% experienced only high-power positions. Thus, rather than high-power positions being experienced by a select few, almost half of participants (47.6%) reported being in a high-power position at least once, although low-power positions were more common.

Positional Power Predicted Feelings of Power Imperfectly. On average, participants reported feelings of power slightly above the scale midpoint (mean = 0.56, SD = 1.11). The average within-person SD for these ratings was 1.08 (SD = 0.50) on a seven-point scale, indicating significant fluctuation across the study period. How much were these fluctuations related to participants' positional power? A multilevel analysis with position as a within-person factor revealed that position affected feelings of power, $F(2, 2,449) = 121.50$, $P < 0.001$. Participants reported the highest average feelings of power in high-power situations (mean = 1.17, SE = 0.11), and the lowest in low-power situations (mean = −0.38, SE = 0.10; $d = 1.01$ for low–high contrast), with baseline in between but still above zero (mean = 0.64, SE = 0.07), all pairwise contrast Ps < 0.001. However, participants in low-power positions (SD = 1.69) had more variance in feelings of power than participants in high-power positions (SD = 1.41), according to a multilevel deviance test of heterogeneity, $\chi^2 (1) = 18.09$, $P < 0.001$ (39). In particular, participants in a low-power position were more likely to report relatively high feelings of power, than participants in a high-power position were to report relatively low feelings of power (Fig. S2).

Feelings of Power Were More About the Situation Than the Person. Because this study is an intensive repeated measurement of feelings of power, we used unconditional two-level models to estimate what portion of these feelings could be attributed to stable factors varying between persons versus situation-specific factors varying within persons over time, and compared the stability of power feelings to that of other states assessed, such as happiness (Fig. S3). Approximately 58% of the variance was estimated to be a result of situational fluctuation, and 42% of stable individual differences. Only happiness and perceived control had higher proportions of situational variance. Thus, over half of subjective feelings of power resulted from situational fluctuation rather than stable individual differences.

Few Individual Differences Were Consistently Related to Power. We ran zero-inflated Poisson regression analyses to predict the frequency of low- and high-power positions from the demographic and dispositional variables (see Table S1 for details). In the full model, being older was associated with reporting fewer low-power positions. Race/ethnicity had reliable overall effects for both positions: Hispanic and Asian participants reported more low-power positions, and Hispanic participants reported fewer high-power positions. Education had a reliable overall effect for low-power positions, but given how few participants had a high-school education, these results should be interpreted cautiously. None of the dispositional measures were significantly related to low-power positions, and only RWA was related to high-power positions: participants higher in RWA reported more high-power positions.

To test the relationship between subjective feelings of power and these variables, we ran multilevel multiple regression models (see Table 1 for details). In the full model, only age, PSP, and RWA were significantly associated with feelings of power. Thus,

Table 1. Level 2 effects on feelings of power, predicted from a multiple multilevel regression analysis including demographics (model step 1) and demographics plus dispositional measures (model step 2)

Demographics and dispositional measures	Step 1			Step 2		
	Coefficient	SE	P	Coefficient	SE	P
Demographics						
Gender	−0.10	0.08	0.219	−0.09	0.08	0.272
Age	0.02	0.01	0.006	0.02	0.01	0.050
Education						
Completed high school	−0.24	0.34	0.486	−0.38	0.33	0.257
Some college	0.13	0.16	0.401	0.15	0.15	0.305
Completed college	0.11	0.15	0.474	0.13	0.15	0.394
Ethnicity						
White	−0.16	0.13	0.212	−0.10	0.13	0.452
African American	0.16	0.20	0.417	0.00	0.20	0.997
Hispanic	−0.51	0.22	0.021	−0.40	0.22	0.063
Asian	0.01	0.18	0.955	−0.04	0.18	0.831
Dispositional measures						
Personal sense of power				0.24	0.07	0.001
Social dominance orientation				0.02	0.08	0.828
Right-wing authoritarianism				0.16	0.05	0.002

Gender was coded -1 = male, 1 = female. Dispositional measures were grand-mean centered.

we found consistent effects of age and RWA for both measures of power, whereas the relationships between power and education, race/ethnicity, and PSP depended on the measure of power.

We also investigated whether the demographic and dispositional variables predicted within-person fluctuations in subjective feelings of power. None were significantly correlated with the within-person SD of feelings of power (*SI Results*).

Some Social Roles Were Systematically Associated with Power. Next, we investigated whether common social roles were differentially associated with low- versus high-power positions, and subjective feelings of power. Across both measures of power (Fig. 1 and Fig. S4), the roles of subordinate colleague and romantic partner were associated with relatively lower reported power, and the roles of superordinate colleague and family member were associated with relatively higher power.

Power Affected Affect, Cognition, and Interpersonal Relations. Because both positional power (Fig. 2) and feelings of power (Table S2) had similar, significant effects on all state measures of affect, cognition, and interpersonal relations, we focus on the results for positional power, as they indicate direction of effects relative to the baseline condition.

Participants were happier and in a better mood when in high-power positions, and less happy and in a worse mood when in low-power positions, compared with baseline, in line with Keltner et al. (3). Low-power positions were also associated with greater stress and resource depletion, compared with high-power positions and baseline situations, which did not differ from each other. The latter result supports the social distance theory of power's (4) hypothesis that high power leads to better self-regulation than low power. High-power positions were associated with greater perceived control and independence from others than low-power positions, in line with the social distance theory of power (4).

As for the interpersonal measures, high-power positions were characterized by more perceived respect than low-power positions, meaning power and status were positively correlated. However, contrary to the social distance theory of power's (4) predictions, participants in high-power positions both wanted to interact with the people around them more and felt closer to them than those in low-power positions. Those in high-power positions also felt more responsible for the people around them than those in low-power

positions. The social distance theory predicts that feelings of responsibility should shrink social distance. Indeed, multilevel mediation analyses confirmed that the effects of both positional power and feelings of power on wanting to interact and feelings of closeness were partially mediated by perceived responsibility (Fig. 3). This finding suggests that the unexpected finding of power reducing social distance can, in part, be explained by power being associated with a sense of heightened responsibility.

Positional Power and Feelings of Power Had Independent Effects on State Measures. Given the similar results for positional power and subjective feelings of power, we investigated their degree of
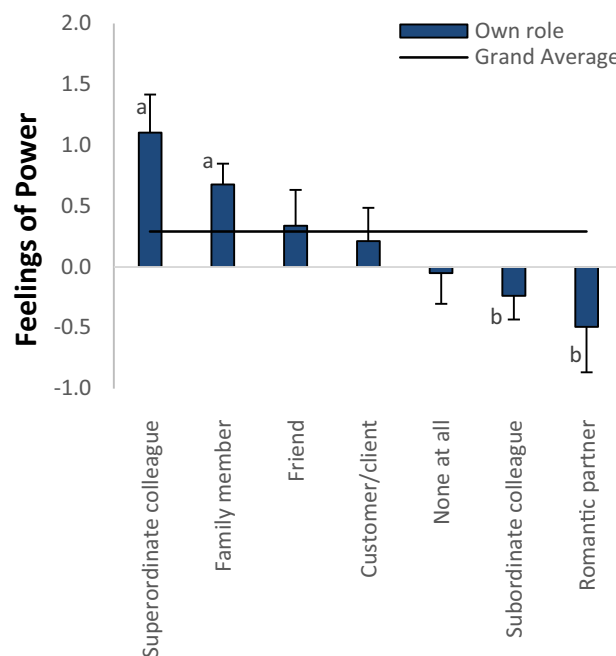
Fig. 1. Feelings of power as a function of social role. Bars that differ significantly (P < 0.05) from the grand average are indicated with the letters "a" (for above-average means) and "b" (for below-average means). Error bars indicate ±1 SE.
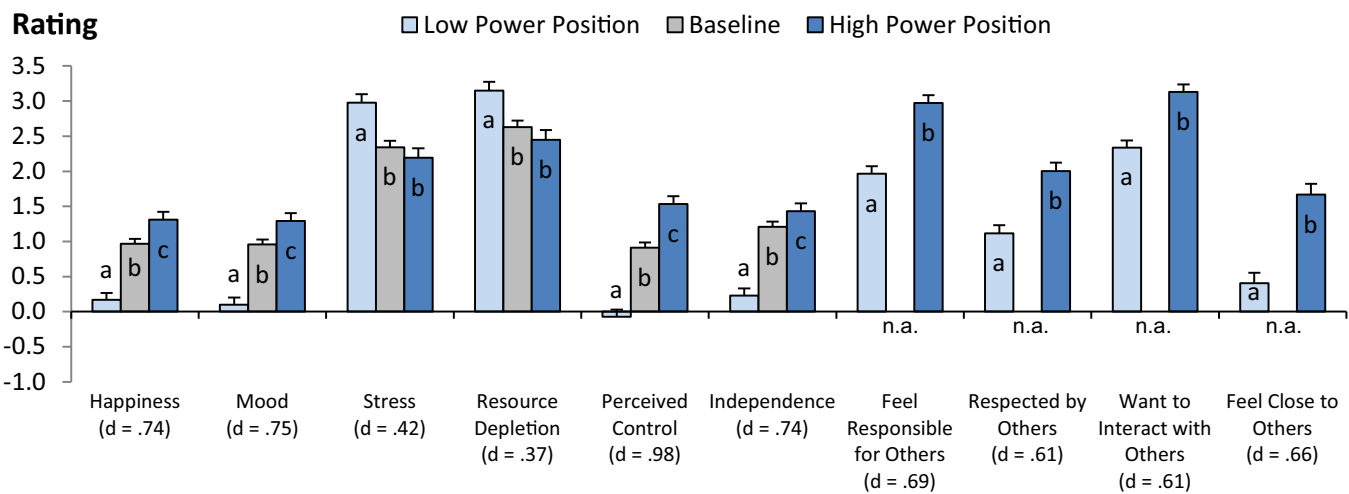
Fig. 2. Multilevel analyses of state measures as a function of low- and high-power position, including power-irrelevant situations as comparison baseline. Happiness, mood, perceived control, independence, and closeness were measured on –3 to +3 scales; stress and resource depletion were measured on 0–6 scales; and responsibility, respect, and want to interact were measured on 0–4 scales. Bars sharing the same letter do not differ significantly from each other. n.a. = baseline not assessed. Significant differences are at $P < 0.05$. Error bars indicate ± 1 SE. Effect size estimates (d) were computed for the differences between low- and high-power-position means.

redundancy and possible interplay with a series of multilevel moderated regression analyses predicting the above state measures from positional power, feelings of power, and their interaction. Positional power had significant independent effects on all measures except resource depletion and respect, and feelings of power had significant independent effects on all measures except responsibility (Table S3). Additionally, positional power and feelings of power only interacted significantly to predict happiness and overall mood. Both feelings of power and positional power were associated with greater happiness and better moods, but higher feelings of power were particularly beneficial for participants in low-power positions, suggesting that feelings of power can buffer individuals from the negative affective consequences of low positional power (Fig. S5).

Discussion

We sought to quantify and understand the everyday experience of power. First, power was a common, though not constant, experience: most participants reported being in power-relevant situations in the 3 study days. Although participants more often reported being in low-power than high-power positions, high-power positions were not rare and were experienced by almost half of participants. This may be because many of the power-relevant situations occurred outside work. Unlike previous research, we had participants themselves indicate whether their situation involved power, which allowed us to discover power in situations not normally considered power-relevant.

Second, positional power and subjective feelings of power were not interchangeable; rather, the relationship between them was complex and varied. For example, many participants in low-power positions reported feeling more powerful than their position seemingly warranted. They may have misperceived reality to maintain the illusion that they had control (40, 41), or their positions may have been low power in a relative, but not absolute, sense (i.e., they had some control but someone else more). Future research should include objective measures of power to distinguish between these possibilities. Furthermore, several individual difference measures (e.g., PSP) were related to one aspect of power but not the other, and positional power and feelings of power had significant independent effects on most of our state measures of affect, cognition, and interpersonal perceptions. These two aspects of power also interacted to predict

happiness and mood: feeling powerful buffered participants from the negative effects of a low-power position so they felt just as positive as those in a high-power position. Thus, our data do not support models of power that treat positional power as operating only via its effects on subjective feelings of power (2, 20). These two types of power may operate independently in part because feelings of power emerge from multiple sources, such as one's disposition (19), not just from the position one holds at the moment (19, 21). Positional power is also by definition interpersonal, whereas feelings of power may be mainly or completely intrapersonal (19), so the two may operate through different processes (4, 10). This distinction between interpersonal and intrapersonal power is reflected in feelings of power having no independent effect, over and above positional power, on feelings of responsibility (Table S3), a clearly interpersonal measure, as predicted by Tost (10).

Third, everyday power owes more to the situation than the person. Although individual differences explained some variation in subjective feelings of power, most of the variability was situationally based. Indeed, only a few individual difference measures were consistently related to both feelings of power and positions held—age and RWA—and none were related to within-person variation in feelings of power. Because 96.2% of participants were age 50 or under, the age results replicate Eaton et al.'s (26) finding that middle-aged adults have more power than younger adults. Several individual difference results were surprising. For example, RWA is associated with deference to authority (30), yet we found a positive relationship between RWA and power. It is also notable we found no relation between power and either gender or SDO, and inconsistent effects of race/ethnicity and education on power, contrary to previous findings (25, 26, 29). Our results for gender, SDO, and race/ethnicity may differ because our participants self-reported their own power in the moment in a variety of situations, providing both subjective feelings of power and positional power, whereas prior research focused on the power associated with an individual's occupation (25, 26, 29), a single kind of positional power. Participants who experienced less power in one context, such as work, may have actively sought power in other contexts, given the desirable nature of power (40, 41). Future research should track individuals over a longer period to explore this possibility. One result of this greater role of the situation is that high-power
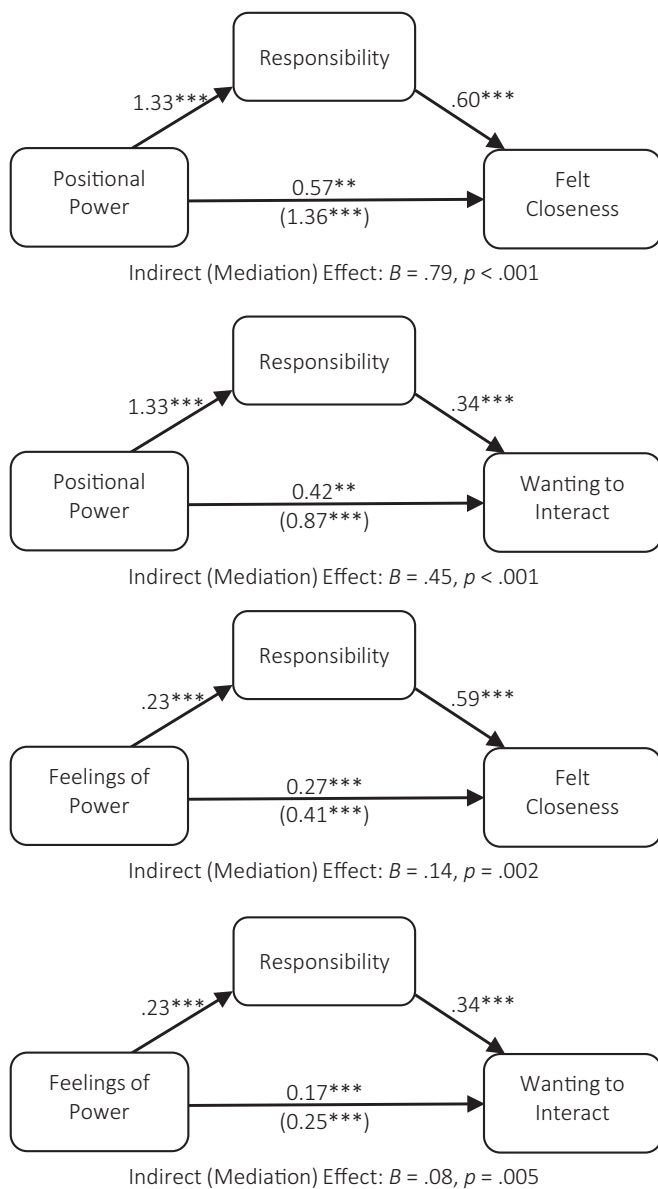
Fig. 3. Effects of positional power (*Upper* two figures) and subjective feelings of power (*Lower* two figures) on felt closeness and wanting to interact with one's interaction partners, as mediated through felt responsibility, as estimated with Mplus. All indirect effects were significant and all mediation analyses indicated partial mediation. *P < 0.05, **P < 0.01, ***P < 0.001.

experiences were not concentrated in a small subset of participants; instead, almost half reported being in a high-power position at least once.

Fourth, social roles mattered. In their daily lives, people switch among multiple social roles varying in their association with power. Superordinate roles at work, as expected, were associated with higher power than subordinate roles. On average the role of family member was associated with relatively high power, and the role of romantic partner, surprisingly, with relatively low power. These differences may be a result of the more symmetric yet variable distribution of power in romantic versus familial relationships. Although both roles involve power dynamics with others (21, 42), certain family roles (e.g., parent) involve great asymmetries in control (e.g., over basic resources like food and shelter). Given the age range of our participants, they were likely

more often in the role of the high-power family member than the low-power one. In contrast, in romantic relationships power dynamics are both less clearly asymmetric and more variable because each partner has power but in different domains (43). Thus, the degree and direction of asymmetry changes with the context. At first, this would seem to indicate that individuals in these roles should on average feel power-neutral. However, as individuals react more strongly to losing power than gaining it (44), participants may have been more sensitive to the contexts in which their partner had power over them than vice versa.

Finally, power mattered, affectively, cognitively, and interpersonally. Low power was related to worse mood, heightened resource depletion, and more stress, replicating previous research (12, 14, 31). Notably, the effects of low power were, on average, about 2.5-times stronger (average Cohen's d to baseline = 0.48) than the effects of high power (average Cohen's d to baseline = 0.19). For resource depletion, this replicated Smith et al. (12), but other effects were unexpected. This finding is notable because much of past research and theorizing on power has emphasized the effects of high, not low, power (2). Similarly, the difference in subjective feelings of power between low-power positions and baseline was twice that of the difference between high-power positions and baseline. However, given the results when feelings of power and positional power were used as simultaneous predictors, differences in subjective feelings cannot explain the difference in strength of effects between low-power and high-power positions. Individuals may be more sensitive to losing power than gaining it (44), leading low-power positions to be more impactful. When combined with the fact that several individual difference variables had different relations with low- versus high-power positions, our results suggest that low power and high power often have different, rather than merely opposite, effects (3, 4, 45). These findings also highlight the importance of including baselines to distinguish between effects of lacking versus having power (3, 4).

The interpersonal effects of power were more complex, highlighting the multifaceted nature of power in everyday life. Contrary to the social distance theory of power (4), high power was associated both with more interest in interacting with the people around them and greater feelings of closeness to them, relative to low power. However, high power was also associated with stronger feelings of responsibility, and these feelings of responsibility partially explained why power was associated with reduced social distance. These results may reflect the greater variety of social roles, most outside the workplace, involved in our ecological research setting. Prior experimental work on power and social distance (35, 36) has focused on one-shot interactions where high-power participants would be unlikely to feel responsible for their partners. These data suggest that in daily life there may be a higher average level of responsibility associated with power than previously thought (10), and that this greater responsibility fundamentally alters the consequences of power. Further research on real-world power outside the workplace is necessary to ensure present theories of power generalize to multiple contexts.

This study is a first step toward quantifying and comprehending the power dynamics of everyday life. Furthermore, these data provide new, real-world evidence relevant for the major power theories in recent literature (3, 4), supporting some predictions and suggesting modifications to others. Power dynamics are an infrequent, yet common and impactful part of the various roles we play in everyday life, so it is critical to understand them and to study them where the action occurs.

Methods and Materials

and met our qualifications (over 18 y of age, proficient in English, and having a smartphone with touchscreen, texting, and data plan). Of 210 total participants, demographic information was available for 186 who completed the intake survey. Mean age was 29.9 y (SD = 9.2; range 18–67 y), and 71.5% were female. Of participants, 2.7% indicated they had completed high school, 39.8% had attended some college, 36.6% had completed college, and 21.0% had completed advanced/postgraduate studies. Of participants, 58.6% were Caucasian, 15.6% Asian, 11.8% African American, 8.6% Hispanic, and 5.4% indicated "other" for race/ethnicity. Thus, although more highly educated than the United States population, our sample was more demographically diverse than the standard laboratory sample (46).

Participants were paid $5 for completing the intake survey. For every completed experience-sampling survey they were paid $0.50 and received one entry into a raffle for a $200 gift card. Only measures included in the present analyses are described below (the full list of measures is available from the authors). The study was approved by the Institutional Review Boards of the University of Chicago and the University of California, San Diego.

Potential participants completed a screening survey and smartphone compatibility test (47) to determine eligibility. Eligible participants next provided informed consent and completed the intake survey, which included questions about gender, age, race/ethnicity, and highest level of education (to measure social class) (48), as well as three dispositional measures (see Table S4 for correlations): personal sense of power (19), social dominance orientation (28), and right-wing authoritarianism (30).

The experience-sampling phase started 1 d after sign-up. During each of 3 consecutive days between 9:00 AM and 9:00 PM, participants received five text messages with a link to the experience-sampling survey. On average,

participants replied to 11.9 of the 15 total signals, an 80% response rate, for a total of 2,502 responses covering 601 participant days.

Each experience-sampling survey (*SI Methods and Materials*) began by asking participants how powerful they felt (−3 = very powerless, +3 = very powerful) to assess subjective feelings of power. They then reported whether: (*i*) they were currently in a position of power over somebody else (i.e., a high-power position), (*ii*) someone else currently had power over them (i.e., a low-power position), or (*iii*) none of the above (i.e., baseline). This categorical variable measured positional power.

Participants who reported being in a low- or high-power position answered additional questions. Participants selected from a list their current social role, if any, and reported the sources of power involved (Table S5). Finally, participants answered four questions about their feelings toward the people they were interacting with: how much they felt these people respected them (−3 = very high disrespect, +3 = very high respect), how much they wanted to interact with them (0 = not at all, 4 = very much), how close they felt to them (−3 = very distant, +3 = very close), and how responsible they felt for them (0 = not at all, 4 = very responsible).

Finally, the following variables were assessed in random order on seven-point scales for all participants: happiness, mood, stress, resource depletion, perceived control, and dependency.

1. Anderson C, Brion S (2014) Perspectives on power in organizations. *Annu Rev Organ Psychol Organ Behav* 1(1):67–97.
2. Galinsky AD, Rucker DD, Magee JC (2015) Power: Past findings, present considerations, and future directions. *APA Handbook of Personality and Social Psychology, Vol. 3: Interpersonal Relationships*, eds Mikulincer M, Shaver PR, Simpson JA, Dovidio JF (American Psychological Association, Washington, DC), pp 421–460.
3. Keltner D, Gruenfeld DH, Anderson C (2003) Power, approach, and inhibition. *Psychol Rev* 110(2):265–284.
4. Magee JC, Smith PK (2013) The social distance theory of power. *Pers Soc Psychol Rev* 17(2):158–186.
5. Russell B (1938) *Power: A New Social Analysis* (George Allen and Unwin, London).
6. Chiao JY, et al. (2008) Knowing who's boss: fMRI and ERP investigations of social dominance perception. *Group Process Intergroup Relat* 11(2):201–214.
7. Zitek EM, Tiedens LZ (2012) The fluency of social hierarchy: The ease with which hierarchical relationships are seen, remembered, learned, and liked. *J Pers Soc Psychol* 102(1):98–115.
8. Bugental DB, Lyon JE, Krantz J, Cortez V (1997) Who's the boss? Differential accessibility of dominance ideation in parent-child relationships. *J Pers Soc Psychol* 72(6):1297–1309.
9. Gray-Little B, Burks N (1983) Power and satisfaction in marriage: A review and critique. *Psychol Bull* 93(3):513–538.
10. Tost LP (2015) When, why, and how do powerholders "feel the power"? Examining the links between structural and psychological power and reviving the connection between power and responsibility. *Res Organ Behav* 35:29–56.
11. Galinsky AD, Gruenfeld DH, Magee JC (2003) From power to action. *J Pers Soc Psychol* 85(3):453–466.
12. Smith PK, Jostmann NB, Galinsky AD, van Dijk WW (2008) Lacking power impairs executive functions. *Psychol Sci* 19(5):441–447.
13. Sturm RE, Antonakis J (2014) Interpersonal power: A review, critique, and research agenda. *J Manage* 41(1):136–163.
14. Berdahl JL, Martorana P (2006) Effects of power on emotion and expression during a controversial group discussion. *Eur J Soc Psychol* 36(4):497–509.
15. Lammers J, Galinsky AD, Gordijn EH, Otten S (2008) Illegitimacy moderates the effects of power on approach. *Psychol Sci* 19(6):558–564.
16. Smith PK, Jost JT, Vijay R (2008) Legitimacy crisis? Behavioral approach and inhibition when power differences are left unexplained. *Soc Justice Res* 21(3):358–376.
17. Csikszentmihalyi M, Larson R (1987) Validity and reliability of the experience-sampling method. *J Nerv Ment Dis* 175(9):526–536.
18. Sidanius J, Pratto F (1999) *Social Dominance: An Intergroup Theory of Social Hierarchy and Oppression* (Cambridge Univ Press, Cambridge, UK).
19. Anderson C, John OP, Keltner D (2012) The personal sense of power. *J Pers* 80(2):313–344.
20. Anderson C, Jennifer BL (2002) The experience of power: Examining the effects of power on approach and inhibition tendencies. *J Pers Soc Psychol* 83(6):1362–1377.
21. Bugental DB, Lewis JC (1999) The paradoxical misuse of power by those who see themselves as powerless: How does it happen? *J Soc Issues* 55(1):51–64.
22. Judge TA, Bono JE, Ilies R, Gerhardt MW (2002) Personality and leadership: A qualitative and quantitative review. *J Appl Psychol* 87(4):765–780.
23. Kenny DA, Zaccaro SJ (1983) An estimate of variance due to traits in leadership. *J Appl Psychol* 68(4):678–685.
24. Anderson C, Spataro SE, Flynn FJ (2008) Personality and organizational culture as determinants of influence. *J Appl Psychol* 93(3):702–710.
25. Carli LL (1999) Gender, interpersonal power, and social influence. *J Soc Issues* 55(1):81–99.
26. Eaton AA, Visser PS, Krosnick JA, Anand S (2009) Social power and attitude strength over the life course. *Pers Soc Psychol Bull* 35(12):1646–1660.
27. Domhoff GW (1998) *Who Rules America?* (Mayfield Publishing, Mountain View, CA).
28. Pratto F, Sidanius J, Stallworth LM, Malle BF (1994) Social dominance orientation: A personality variable predicting social and political attitudes. *J Pers Soc Psychol* 67(4):741–763.
29. Guimond S, Dambrun M, Michinov N, Duarte S (2003) Does social dominance generate prejudice? Integrating individual and contextual determinants of intergroup cognitions. *J Pers Soc Psychol* 84(4):697–721.
30. Altemeyer B (1981) *Right-Wing Authoritarianism* (University Press, Manitoba, Canada).
31. Langner CA, Keltner D (2008) Social power and emotional experience: Actor and partner effects in dyadic interactions. *J Exp Soc Psychol* 44(3):848–856.
32. Fiske ST (1993) Controlling other people. The impact of power on stereotyping. *Am Psychol* 48(6):621–628.
33. DeWall CN, Baumeister RF, Mead NL, Vohs KD (2011) How leaders self-regulate their task performance: Evidence that power promotes diligence, depletion, and disdain. *J Pers Soc Psychol* 100(1):47–65.
34. Guinote A (2007) Power and goal pursuit. *Pers Soc Psychol Bull* 33(8):1076–1087.
35. Lammers J, Galinsky AD, Gordijn EH, Otten S (2012) Power increases social distance. *Soc Psychol Personal Sci* 3(3):282–290.
36. van Kleef GA, et al. (2008) Power, distress, and compassion: Turning a blind eye to the suffering of others. *Psychol Sci* 19(12):1315–1322.
37. Blader SL, Chen Y-R (2014) What's in a name? Status, power, and other forms of social hierarchy. *The Psychology of Social Status*, eds Cheng JT, Tracy JL, Anderson C (Springer, New York), pp 71–95.
38. Hox J (2010) *Multilevel Analysis: Techniques and Applications* (Routledge, New York), 2nd Ed.
39. Kuppens T, Yzerbyt VY (2014) Predicting variability: Using multilevel modelling to assess differences in variance. *Eur J Soc Psychol* 44(7):691–700.
40. Langer EJ (1975) The illusion of control. *J Pers Soc Psychol* 32(2):311–328.
41. Whitson JA, Galinsky AD (2008) Lacking control increases illusory pattern perception. *Science* 322(5898):115–117.
42. Howard JA, Blumstein P, Schwartz P (1986) Sex, power, and influence tactics in intimate relationships. *J Pers Soc Psychol* 51(1):102–109.
43. Kelley HH, Thibaut JW (1978) *Interpersonal Relations: A Theory of Interdependence* (John Wiley, New York).
44. Pettit NC, Yong K, Spataro SE (2010) Holding your place: Reactions to the prospect of status gains and losses. *J Exp Soc Psychol* 46(2):396–401.
45. Moskowitz DS (2004) Does elevated power lead to approach and reduced power to inhibition? Comment on Keltner, Gruenfeld, and Anderson (2003). *Psychol Rev* 111(3):808–811.
46. Peterson RA (2012) On the use of college students in social science research: Insights from a second-order meta-analysis. *J Consum Res* 28(3):450–461.
47. Hofmann W, Patel PV (2015) SurveySignal: A convenient solution for experience sampling research using participants' own smartphones. *Soc Sci Comput Rev* 33(2):235–253.
48. Oakes JM, Rossi PH (2003) The measurement of SES in health research: Current practice and steps toward a new approach. *Soc Sci Med* 56(4):769–784.
49. Hektner JM, Schmidt JA, Csikszentmihalyi M (2007) *Experience Sampling Method: Measuring the Quality of Everyday Life* (Sage Publications, Thousand Oaks, CA).
50. French JRP, Raven B (1959) The bases of social power. *Studies of Social Power*, ed Cartwright D (Institute of Social Research, Ann Arbor, MI), pp 150–167.
51. Cohen J, Cohen P, West SG, Aiken LS (2003) *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (Erlbaum, Mahwah, NJ), 3rd Ed.

Supporting Information

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SI Methods and Materials

Intake Survey. Personal sense of power (PSP) was measured with the general version of the eight-item scale (19) (e.g., "When it comes to my relationships with others, I can get them to do what I want"), α = 0.88. Social dominance orientation (SDO) was assessed with the 16-item scale (28) (e.g., "It's probably a good thing that certain groups are at the top and other groups are at the bottom"), α = 0.92. Right-wing authoritarianism (RWA) was measured with the short four-item scale (30) (e.g., "It's probably a good thing that certain groups are at the top and other groups are at the bottom"), α = 0.94.

Experience-Sampling Survey. Following the recommendations of Hektner et al. (49), the 12-h time window (9:00 AM to 9:00 PM) during which text messages were sent was divided into five blocks of 144-min each; within each block, a message time was randomly selected with the constraint that two consecutive messages had to be at least 60-min apart. If a response to the text message was not received within the first 15 min, a reminder message was sent. Participants had 2 h to respond but were encouraged to respond quickly. The median delay in responding was 6 min. The average completion time per survey was 4.1 min. A small fraction (1.4%) of surveys was only partially completed.

Power-specific assessments. First, participants who reported being in a low- or high-power position described their current social situation in a few words. They then selected from a list their current social role, if any. They could choose from the following options: "student," "subordinate colleague at work," "same level colleague at work," "superordinate colleague at work (e.g., boss, team leader)," "customer/client," "vendor/salesperson/contractor," "family member," "romantic partner," "friend," "audience member," "none at all," and "other." The provided role categories were checked as follows (in descending order): family (31.4%), subordinate colleague at work (19.2%), friend (8.8%), none at all (8.8%), customer/client (8.4%), superordinate colleague at work (6.7%), romantic partner (6.1%), other (5.4%), audience member (2.3%), vendor/salesperson/contractor (1.9%). Because the last two categories (audience and vendor) were infrequent, we combined them with the category "other" for analyses. Analyses involving the role variable only included occasions for which a single role was selected (88.4% of cases).

Next, participants reported on the sources of power in these situations, using the 13 options displayed in Table S4. These sources were derived from French and Raven's (50) work on bases of power, definitions of power in recent literature (3, 4), and personal experience. Participants in a low-power position selected options over which somebody else had at least some degree of control/power in their interaction with others. Participants in a high-power position selected options over which they had at least some degree of control/power in their interaction with others. When indicating sources of power, participants could also select "other" and "none of the above," which were both used infrequently (0.5% and 2% of responses, respectively). Participants in high-power positions also indicated how much they used these sources of power overall (0 = not at all, 6 = very much).

State assessments. The item wordings and response scales for these variables were as follows: happiness (how happy do you feel at the moment: −3 = very unhappy, +3 = very happy), mood (how is your mood at the moment: −3 = very bad, +3 = very good), resource depletion (how mentally exhausted do you feel at the moment: 0 = not at all, 6 = very much), stress (how stressed are you at the moment: 0 = not at all, 6 = very much), perceived control (how much in control vs. how helpless do you feel at the moment: −3 = very helpless, +3 = very much in control), and dependency (how dependent vs. independent do you feel at the moment: −3 = very dependent, +3 = very independent).

SI Results

Data Sharing. The data for this project are available via the Open Science Framework (OSF) at https://osf.io/wbxuc.

General Analysis Plan. For all analyses involving multilevel modeling, measurement occasion and time-varying variables were modeled as level 1 variables, and demographic and dispositional variables were modeled as level 2 variables. For analyses involving multiple demographic and dispositional variables, we followed a two-step procedure: step 1 consisted of all demographic predictor variables and step 2 added all three dispositional measures (grand-mean centered). Simple descriptive and multilevel models were conducted in SPSS. Models involving model comparisons were conducted using HLM. To predict frequency data, we applied zero-inflated negative binomial models with logit link using the R package pscl. To conduct multilevel path models we used Mplus. Moreover, we conducted sensitivity analyses to check whether statistical conclusions for analyses involving level 1 predictors would be affected by modeling these predictor variables as random. This was not the case, and because effect estimates were very similar, we report the more parsimonious fixed-effects models here.

Gender. Because the sample was skewed in terms of gender, we conducted an additional set of sensitivity analyses by including gender in all multilevel analyses via an unweighted effects code (−1 = male; 1 = female) (51). Gender did not moderate the results reported in the main text, so we only report and discuss the results for the original analysis in the main text. Gender did moderate the results with sources of power, as described below.

Individual Differences. In the full model for positional power, gender was not related to either position, race/ethnicity had a reliable overall effect for both positions, as indicated by likelihood ratio (LR) tests of model difference due to the exclusion of the race/ethnicity effect codes, $LR_{low\ power} = 31.2$, and $LR_{high\ power} = 20.4$, $Ps < 0.001$. Education had a reliable overall effect for low-power positions only, $LR_{low\ power} = 11.0$, $P = 0.012$, and $LR_{high\ power} = 7.4$, $P = 0.060$. Participants who had only completed high school reported more low-power positions, whereas participants with more education reported fewer low-power positions.

In the full model for subjective power, the overall effects of race/ethnicity, $\chi^2 (4) = 8.69$, $P = 0.068$, and education, $\chi^2 (3) = 1.02$, $P > 0.500$, gauged by comparing the deviance with and without the effect codes, were nonsignificant.

To investigate whether within-person fluctuations in subjective feelings of power were affected by the demographic and dispositional variables, we correlated these variables with the within-person SD of feelings of power. The main text reports this analysis only including participants with at least five responses (93% of those who completed the dispositional measures) to allow for proper SD estimates; here all $Ps > 0.169$. If all participants are included in this analysis, the correlations remain nonsignificant, all $Ps > 0.071$.

Social Roles. Positional power and reported social role were strongly associated, $\chi^2 (7) = 108.1$, $P < 0.001$, Cramer's $V = 0.49$. The roles mentioned more often with low- than high-power positions were subordinate colleague, customer/client, and romantic partner, and

the roles mentioned more often with high- than low-power positions were superordinate colleague and family member (Fig. S4).

We also conducted a multilevel analysis on feelings of power with role as a categorical predictor. We used effect coding, with the category "other" as the reference group, to determine which roles differed reliably from the grand average (Fig. 1). In line with the positional power data, subjective feelings of power were significantly below average for the roles of subordinate colleague and romantic partner, and significantly above average for superordinate colleague and family member.

Sources of Power. First we analyzed the 13 specific sources of power jointly by summing all resources mentioned for a specific event into an aggregate index. Participants perceived significantly more sources of power when they were in a high-power position, mean = 4.47, SE = 0.29, compared with a low-power position, mean = 3.63, SE = 0.28, $F(1, 400) = 6.6$, $P = 0.011$, $d = 0.24$ (Table S5). The relative proportions of the 13 power sources reported for low- and high-power positions were very similar ($r = 0.85$ for the percentages for the two positions).

Next, we grouped the 13 options into four broad sources of power: resource allocation and sharing, decision-making process, action distribution, and reward and punishment. Controlling for positional power, there was no relationship between any of the four broad power source indices and feelings of power, all $Ps \geq 0.10$. Similarly, none of these more specific indices differed significantly between low- and high-power positions, all $Ps > 0.05$, indicating that low- and high-power positions afforded these sources to comparable degrees. Finally, there was no relationship between the overall number of perceived power sources and feelings of power for participants when they were in high-power positions, $B = -0.004$, $P = 0.886$, or low-power positions, $B = -0.05$, $P = 0.197$. What mattered for variations in power feelings in high-power positions was the degree to which participants indicated they had actually wielded their power, $B = 0.26$, $P < 0.001$.

Some of these results were affected by gender when it was included. Specifically, in the analysis of times various sources of power were mentioned for low- and high-power positions, gender had a significant main effect as a covariate, $B = 0.60$, $P = 0.023$: women reported more sources of power than men. This gender effect was not moderated by position, $P = 0.245$. Additionally, in the analyses examining how often each of the four broad power source indices was listed for low- vs. high-power positions, gender did not covary significantly with any of the four indices. However, controlling for gender changed the position contrast for action distribution from nonsignificant ($P = 0.051$) to significant ($P = 0.038$), suggesting that high-power positions, on average, were associated with more perceived power sources related to how action was distributed than low power positions.

In short, we found that power came from multiple sources, but feelings of power came from exercising power. The variety of sources of power reported in our data implies that narrow definitions of power, such as the capacity to reward and punish (3), ignore much of everyday power. We also found that what mattered for subjective feelings of power was not the particular source, or the number of sources, but rather how much power was wielded.
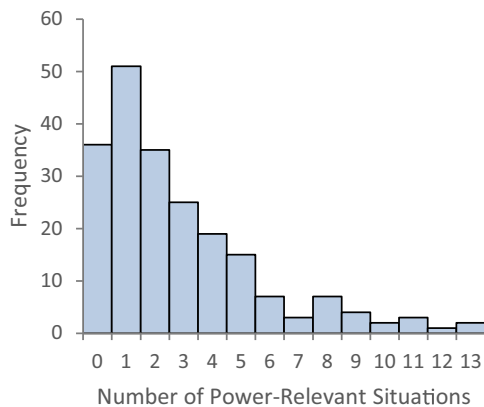

Fig. S1. Distribution of number of power-relevant situations.
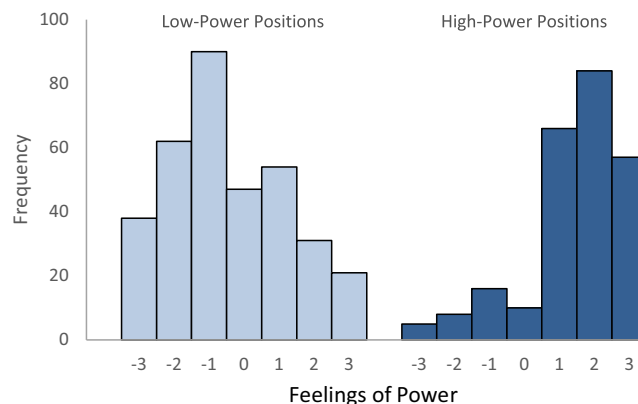

Fig. S2. Distribution of feelings of power in low-power positions (light blue bars on left) and high-power positions (dark blue bars on right). Feelings of power were measured on a continuous scale from −3 to +3.
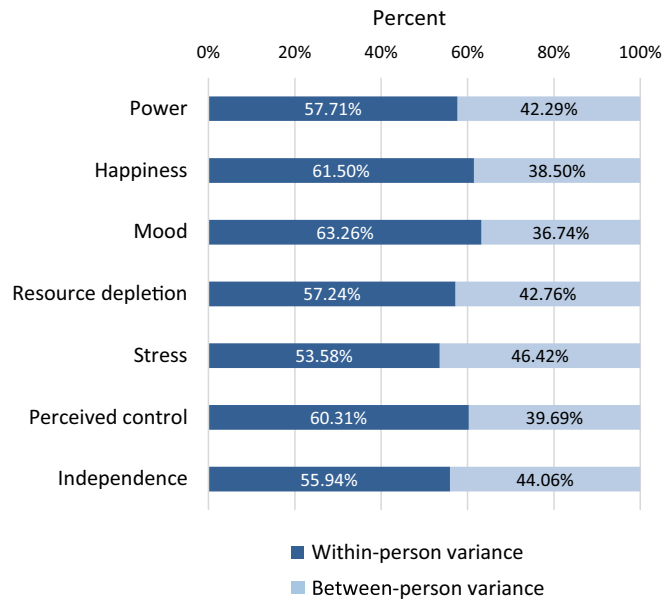
Fig. S3. Decomposition of total variance in state measures into within-person variance (dark blue bars on left) and between-person variance (light blue bars on right) as estimated with unconditional two-level models.
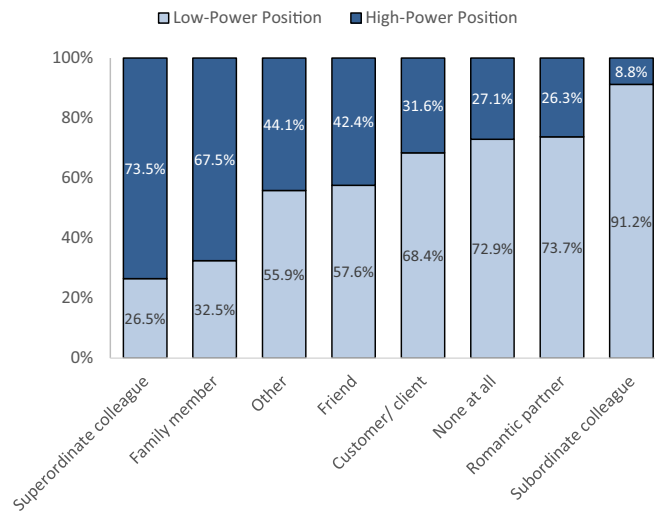
Fig. S4. Percentage of participants reporting being in a given social role who were in a low-power position (light blue) versus high-power position (dark blue). Results are for the 88.4% of occasions for which participants reported only one role.

Fig. S5. Plot of the interaction between positional power (low versus high) and feelings of power on happiness (*Upper*) and mood (*Lower*).

Table S1. Zero-inflated Poisson regression analyses predicting the frequency of low- and high-power positions from demographics (step 1) and dispositional measures (step 2)

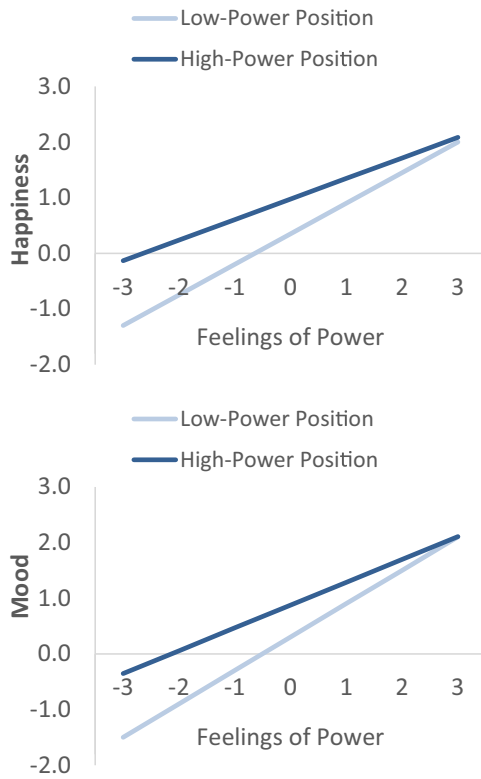| Position and variables	Step 1			Step 2		
	Coefficient	SE	P	Coefficient	SE	P
Low-power positions						
Demographics						
Gender	0.125	0.08	0.095	0.120	0.08	0.113
Age	−0.026	0.01	0.005	−0.025	0.01	0.008
Education						
Completed high school	0.719	0.20	<0.001	0.801	0.22	<0.001
Some college	−0.225	0.11	0.041	−0.230	0.11	0.041
Completed college	−0.220	0.11	0.043	−0.229	0.11	0.039
Ethnicity						
White	−0.046	0.12	0.696	−0.027	0.12	0.816
African American	−0.430	0.20	0.030	−0.377	0.21	0.069
Hispanic	0.814	0.16	<0.001	0.912	0.17	<0.001
Asian	0.301	0.14	0.033	0.311	0.15	0.034
Dispositional measures						
Personal sense of power				0.112	0.06	0.064
Social dominance orientation				−0.021	0.07	0.749
Right-wing authoritarianism				−0.010	0.04	0.807
High-power positions						
Demographics						
Gender	0.057	0.09	0.536	0.073	0.09	0.441
Age	0.030	0.01	0.001	0.019	0.01	0.063
Education						
Completed high school	−0.922	0.47	0.047	−0.792	0.49	0.108
Some college	0.150	0.20	0.451	0.090	0.21	0.674
Completed college	0.336	0.18	0.069	0.258	0.20	0.191
Ethnicity						
White	−0.088	0.15	0.568	−0.013	0.16	0.936
African American	0.534	0.19	0.004	0.319	0.20	0.119
Hispanic	−1.224	0.42	0.004	−1.181	0.42	0.004
Asian	0.307	0.23	0.188	0.203	0.24	0.389
Dispositional measures						
Personal sense of power				0.110	0.08	0.148
Social dominance orientation				0.022	0.08	0.777
Right-wing authoritarianism				0.139	0.06	0.014

Gender was coded -1 = male, 1 = female. Dispositional measures were grand-mean centered.

Table S2. Multilevel multiple regression analysis predicting state measures from continuous feelings of power

Variable	Effect of feelings of power			
	Intercept	B	SE	P
Happiness	0.60	0.53	0.02	<0.001
Mood	0.56	0.56	0.02	<0.001
Stress	2.61	−0.35	0.02	<0.001
Resource depletion	2.88	−0.36	0.02	<0.001
Perceived control	0.52	0.59	0.02	<0.001
Independence	0.85	0.45	0.02	<0.001
Feel responsible for others	2.35	0.18	0.04	<0.001
Respected by others	1.38	0.33	0.04	<0.001
Want to interact with others	2.62	0.21	0.04	<0.001
Feel close to others	0.84	0.36	0.05	<0.001

Positive Bs indicate increasing values on the state measure with increasing feelings of power.

Table S3. Multilevel moderated regression analysis predicting state measures from positional power, feelings of power, and the interaction between positional power and feelings of power

Variable	IC	ME positional power	CME feelings of power	IA positional power × feelings of power
Happiness	0.35	0.62***	0.55***	−0.18*
Mood	0.30	0.57***	0.60***	−0.19*
Stress	2.83	−0.46*	−0.34***	0.11
Resource depletion	2.99	−0.30	−0.30***	0.02
Perceived control	0.06	0.81***	0.54***	0.06
Independence	0.33	0.82***	0.44***	−0.07
Feel responsible for others	1.98	0.78***	0.02	0.12
Respected by others	1.22	0.30	0.24***	0.09
Want to interact with others	2.40	0.49**	0.12*	0.04
Feel close to others	0.49	0.72**	0.20**	0.12

CME, conditional main effect; IA, interaction; IC, intercept; ME, main effect. Positional power was dummy-coded (0 = low power position, 1 = high power position), meaning conditional main effects for feelings of power are estimated for the low-power reference group. Results suggest that positional power and feelings of power have largely independent effects. The significant interactions for happiness and mood are displayed in Fig. S5. *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

Table S4. Zero-order correlations between aggregated feelings of power during the experience-sampling phase and demographic and dispositional measures

Variable	1	2	3	4	5	6
1) Gender	—					
2) Age	−0.02	—				
3) Education (rank)	0.07	0.25***	—			
4) Personal sense of power	0.10	0.10	0.09	—		
5) Social dominance orientation	−0.15*	−0.01	−0.15*	−0.20**	—	
6) Right-wing authoritarianism	−0.16*	0.12	−0.18*	−0.31***	0.43***	—
7) Aggregated feelings of power	−0.11	0.17*	−0.03	0.21**	0.10	0.23**

Gender was coded 0 = male, 1 = female. Correlations involving education were computed as Spearman rank-order correlations (with higher education values indicating higher education). Aggregated feelings of power were aggregated at the individual level by averaging across all of a participant's reported time points. *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

Table S5. Power sources reported for low- and high-power positions

Power source	Low-power positions	%	High-power positions	%	Difference
Resource allocation and sharing					
Resources	How resources are allocated or spent	27.7	How resources are allocated or spent	41.8	14.2
Time	How time is spent	28.6	How time is spent	46.6	18.0
Information	Providing important information	39.8	Providing important information	49.0	9.2
Decision-making process					
Decision-making	How decisions are made	21.4	How decisions are made	33.7	12.3
Discussion	What issues are being discussed	24.8	What issues are being discussed	24.5	−0.2
Participation	Who is allowed to speak or participate	12.1	Who is allowed to speak or participate	17.3	5.2
Attention	When I get attention	11.7	Who gets attention when	30.3	18.6
Action distribution					
Action means	How things are done	42.7	How things are done	54.8	12.1
Action selection	What things are done or not done	46.6	What things are done or not done	62.5	15.9
Work distribution	Who does what/how work is distributed	24.8	Who does what/how work is distributed	33.7	8.9
Location	Where I am going (e.g., place, location)	46.6	Where you are going (e.g., place, location)	40.9	−5.7
Reward and punishment					
Reward	Whether/how I am being rewarded	10.2	Who is being rewarded	29.8	19.6
Punishment	Whether/how I am being punished	10.7	Who is being punished	22.1	11.4
	(None of the above)	5.8	(None of the above)	1.0	4.8

For low-power positions, the question answered was, "In interacting with these people, over which of the following things does somebody have at least some degree of control/power?" For high-power positions, the question answered was, "In interacting with these people, over which of the following things do you have at least some degree of control/power?" Percentage mentioned adds up to more than 100% because multiple responses were possible.